

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1399.—VOL. XXXII.

R. JAMES CROFTS, SHAREBROKER,  
No. 1, FINCH LANE, CORNHILL. (Established 17 years.)  
Shares transact business, in the way of PURCHASE or SALE, in every description of stock, but particularly in BRITISH MINES, in no case departing from the policy of a broker, at net prices. All orders meet with the utmost punctuality and advice given as to the nature and eligibility of INVESTMENTS, when required, CHANGES OF STOCK effected on the most advantageous basis, subject only to one condition.

RECOMMENDED AS INVESTMENTS, OR FOR SPEEDY PROFITS:—Uny, Wheal Sithney and Carnmen, North Trelawny\*, Wheal Trelewney\*, North Downs, Cefn Cilcain, Central Minera, Lower Park\*, East Carn Brea, East Caradon, Lady Bertha, Tincoff, Trewhay, St. Ives Wheal Allen\*, Bedford Consols.

\* Should be purchased immediately, to realise Mr. Crofts recommendations.

R. JAMES LANE, No. 44, THREADNEEDLE STREET, LONDON, E.C.

Lane has for sale, at net prices:—20 Arthur, 12s.; 5 Bassett and Grylls, 12s.; 5 Drake Walls, 21s.; 20 Crookhams, 23s.; 100 Dale, 10s. 6d.; 20 East Jane, 20s.; 20 East Downs, 22s.; 20 East Russell, £31s.; 50 Great Wheal Martha, 16s. 6d.; 50 Great Wheal Phoenix, 25s.; 50 Great Trewhay, 25s.; 20 Kelly Bray, 10s. 6d.; 5 Lodeot, £15s.; 20 Moyle, 20s.; 20 Myra, 20s.; 50 North Hallebeagie, 17s. 6d. paid, 15s.; 50 North Myra, 20s.; 10 North Trelawny, 32s.; 10 North Phoenix, 20s.; 5 Old Tolgus, 20s.; 20 Prosper (Breage), 27s.; 5 Poincar, 16s.; 20 Pedn-an-dren, 12s.; 50 Pollard, 20s.; 20 Redmoor, 6s. 6d.; 3 Rosewarne United, £23s.; 40 Sortridge, 11s.; 5 Sithney, 20s.; 20 South Cardon Wheal Hooper, 3s. 6d.; 25 Tolvadden, £23s.; 20 Condurrow, 20s.; 20 West Cardon, £36; 30 West South Cardon, 14s.; and 20s., £13s.

STOCK AND SHAREDEALER.—MR. PETER WATSON, ENGLISH AND FOREIGN STOCK, SHARE, and MINING OFFICES, 79, OLD BROAD STREET, LONDON, E.C.

JOINT-STOCK BANKS, DOCK, INSURANCE, CANAL, MINING, &c., and EVERY OTHER description of SHARES BOUGHT and SOLD.

Commission of 1 per cent. of the amount of commission, or at nett price.

Telegraphic messages to buy or sell Railway, Bank, Mine, and other shares and stocks usually intended to be sold on commission, or at nett price for cash, or for fortnightly settle-

ments, with advice as to purchases or sales.

Seven years' experience (two in Cornwall and fifteen in London).

Bankers: Union Bank of London.

Any information can be obtained, on personal application or by letter, as to purchases of mine and other shares, and the best investment for capital.

Peter Watson is enabled to act with promptitude on all orders entrusted to him, at all times carried out with punctuality, and to the best advantage of his clients.

Fee £2 10s. each inspection.

IMPORTANT INFORMATION ON THE FOLLOWING MINES:—

WHEAL LUDCOTT,  
EAST CARN BREA,  
NORTH WHEAL TRELAWSY,  
EAST CARADON,  
TINCOFF,  
WHEAL GRYLLS,

and others, in Peter Watson's "WEEKLY-MINING CIRCULAR," No. 220, yesterday (Friday, the 13th), price 6d. each copy.

R. LELEAN, STOCK AND SHAREBROKER, 11, ROYAL EXCHANGE, LONDON, E.C.

WANTED TO PURCHASE, FIVE SHARES in ST. IVES CONSOLS. State lowest price.—Apply to Mr. LELEAN, 11, Royal Exchange.

R. E. BEAZLEY, MINING AND GENERAL BROKER, 1, BANK CHAMBERS, LOTHBURY, LONDON, E.C.

selected division and progressive mines that he can recommend for investments, a speedy rise in price. Particulars may be had on application.

Mr. Beazley, 1, Bank Chambers and Calamine Company (Limited) on application.

R. F. LISABE, C.E. AND C.M.E., may be consulted by letter or personally, at his office, No. 25, MOORGATE STREET, CITY, upon all matters connected with mining.

HEN RISLEY, 32, LOMBARD STREET, LONDON, E.C.

SHARES IN MINES BOUGHT AND SOLD, or commission, at 2½ per cent., for less sums. Bankers: London and Westminster, Lothbury.

WILLIAM SEWARD, MINING BROKER, STOCK AND SHAREDEALER, 26, THROGMORTON STREET, LONDON, E.C.

Commission, 1½ per cent. on £100 and above, and 2½ per cent. on less sums.

GEO. RICE, SHAREBROKER, 1, FINCH LANE, CORNHILL, has SPECIAL BUSINESS in—

Great South Tolgus, Wheal Grenville.  
Marke Valley, Wheal Sets.  
North Downs, West Cardon.  
North Trewhay, Wheal Lodeot.  
North Trelawny, Wheal Uny.  
Tincoff, Wheal Union.

All sellers must state lowest price, and number of shares.

George Rice will also sell shares at close prices.

There are some shares now very high, and should be sold. There are others which are bought for a great rise.

Bankers: Bank of London.

NORTH TRESKERY SHARES WANTED TO PURCHASE.—

George Rice will buy any number in this mine at fair market prices; and begs his friends that this is one of the cheapest and best mines in Cornwall; the

market value of the mine being only about £20,000, whilst other mines in the district, with no better prospects, are now selling for more than £110,000. The

mine only divided into 848 shares, the shares must rise greatly in price, and prove a good permanent investment.

R. H. WADDINGTON, MINING AND SHAREBROKER, 74, OLD BROAD STREET, LONDON, E.C.

Stocks BOUGHT AND SOLD at the usual commission. RAILWAY, and OTHER SHARES at Stock Exchange rates.

Who bought New Seton and Uny on H. Waddington's recommendation may profit of 20 per cent.

Apparson is a BUYER of 100 Pedn-an-dren. Sellers please state price.

For SALE:—

20 North Downs, £4½.; 10 Uny, £29½.; 1 Bassett, £96.

R. H. M. JACKMAN, MINING AND SHAREBROKER, 1, ADAMS COURT, OLD BROAD STREET, and BRITISH MINING EXCHANGE BUILDINGS, LONDON, E.C. (Established 15 years), has FOR SALE, 150 East Granville; 150 Wheal Pollard, 12s.; 120 Redmoor, 5s. 9d.; 100 North Dale, 10s.; 100 South Cardon, 14s. 6d.; 200 Wheal Hope, 5s. 9d.; 100 Great Wheal Hooper, 25s.; 100 Wheal Grenville, 27s.; 50 Great Wheal Martina, 14s. 6d.; 60 Tolvadden, £2; 25 Gonamens, £2 18s.; 50 South Cardon, 12s. 6d.; 4 Bryn Gwilog; 5 North Trewhay; 10 Long Bake, 20s.; 20 North Basset, £4, for cash.

GEORGE BUDGE, SHAREBROKER, No. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established 15 years), has FOR SALE, 150 East Granville; 150 Wheal Pollard, 12s.; 120 Redmoor, 5s. 9d.; 100 North Dale, 10s.; 100 South Cardon, 14s. 6d.; 200 Wheal Hope, 5s. 9d.; 100 Great Wheal Hooper, 25s.; 100 Wheal Grenville, 27s.; 50 Great Wheal Martina, 14s. 6d.; 60 Tolvadden, £2; 25 Gonamens, £2 18s.; 50 South Cardon, 12s. 6d.; 4 Bryn Gwilog; 5 North Trewhay; 10 Long Bake, 20s.; 20 North Basset, £4, for cash.

SHARES BOUGHT AND SOLD by Messrs. FULLER AND CO., No. 26, ADAM'S COURT, CORNHILL, LONDON. The holders of stock are invited to come and see us, either for the purchase or sale of such stocks.

We pay special attention to the present favourable opportunity in British mines, being perfectly free from risk, and paying 15 to 20 per cent. profit in a few months. Telegraphic messages promptly attended to.

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## **THE INTERNATIONAL EXHIBITION-1862.**

The manufacture of tubes and fittings for steam, water, and gas is one of rapidly-increasing importance, and the variety, quantity, and excellence of the work exhibited by the best makers is deserving of especial notice in connection with our descriptions of iron and iron manufactures. This branch of the iron trade may be traced back to 1808, when it seems to have taken its rise in the efforts of the master gunmakers to free themselves from the unjust demands of their workmen who were skilled in barrel-making; but it was not until years after this, when gas came into general use, that the production of wrought-iron tubes took its place as one of our great manufacturing processes; since this demand sprung up its progress has kept pace with the constantly-increasing requirements, and it has now arrived at a degree of perfection which is unquestionably suggestive of more extended application. We can have no hesitation in selecting Messrs. JAMES RUSSELL and Sons, of the Crown Tube Works, Wednesbury (Class VIII. No. 1975), as that demanding our first notice, showing, as they do, the great degree of perfection which the manufacture has attained, and some of their specimens are certainly without a parallel. In 1813 the first parallel tube ever produced was made by Mr. Jas. Russell, the founder of the firm in question, and in 1824 he obtained a patent for the invention. In addition to all the usual gas tubes and fittings, Messrs. Russell produce steam and water tubes of extraordinary capabilities and sizes, as will be seen in the following enumeration of a few of the articles exhibited:—Boiler tube, 12 in. diameter, 5-16ths in. of inch thick, 12 ft. long; others from  $\frac{1}{2}$  in. to 1 in. diameter and 16 ft. long; welded steam tubes, 12 in. diameter and 12 ft. long, with wrought-iron flanges screwed on; 21 tubes, from 2 in. bore by  $\frac{1}{8}$  in. thick, down to  $\frac{1}{2}$  in. bore, for hydraulic purposes; taper tubes from 6 in. to 3 in., with flange; also flanges, sockets, bends, and other fittings for all the above tubes, which are finished with a degree of accuracy that would satisfy the most fastidious judgment. Since Messrs. Russell's collection was placed in the building we understand tubes of 14 ins. diameter, with the various fittings and connections to correspond, have been manufactured at the Crown Works. In proof of the perfection of the screw-cutting machinery of this establishment, we may observe that there is one tube in this collection 12 ft. long (with a flange), that has been screwed its entire length. But, perhaps, the most interesting examples of the whole collection are those specimens which have been subjected to tests of an extraordinarily severe character in proof of their merit.

We next call attention to RUSSELL and HOWELL's homogeneous tubes, the homogeneous metal being one of the mild steels which we have already alluded to in previous articles, and which seems to combine the strength of steel with the toughness of copper. There are specimens of these which have been burst by internal hydraulic pressure from 3000 to 5000 lbs. per square inch, the thickness of the metal being less than half what is usual for iron tubes of the same diameter. There are other examples of such tubes which have been crushed on opposite diameters, by blows from a hammer, when cold; also some which have been crushed down endways, without showing any disruption of the material; others, both of homogeneous metal and iron, which have been collapsed by external hydraulic pressure, by forces varying from 2300 to 2600 lbs. per square inch. They show also some hydraulic tubes *proved*, but not *burst*, by a pressure varying from 8500 to 12,000 lbs. per square inch. We cannot avoid thinking that exhibitions and demonstrations of this sort are highly suggestive; they place before the intelligent engineer the material at his command, and the data requisite for applying it to new purposes, and is at once a most convincing proof that homogeneous metal possessing these properties furnishes the means of constructing steam boilers capable of sustaining any required pressure. We may naturally ask why we should continue to make our boilers of such monstrous and dangerous proportions, when we can command infinite increase of strength in combination with diminished weight by the use of these tubes? A great change in the construction of boilers is a matter of necessity, for the advantages of high-pressure and super-heated steam have become acknowledged facts; and we cannot go on increasing our pressure (in the same enormous and comparatively weak magazines of power which were originally designed to sustain 20 or 30 lbs. pressure per square inch) without compromising the safety of all engaged about them. But it is not only for steam purposes that wrought-iron tubes of large diameter are applicable. They are now being brought into use as mine pumps, and under some conditions possess great advantages over the ordinary cast-iron pipes. Their lightness and strength at once decide the question in their favour—especially in foreign mining districts, many of which are so situated as to make the cost of transit greater than that of the castings.

Messrs. HAWKSWORTH and HARDING, of Linlithgow (No. 143, Class I.), exhibit gun and rifle barrels made by a peculiar process, which is worthy of attention. They make steel gun-barrels without joint or weld. Their patent specifies a mode of manufacturing them by a process of *cold* drawing and rolling, as follows:—We take a properly-prepared piece of steel, from 6 in. to 1 ft. long, by 2 to 6 in. diameter, through which a hole of a certain size is drilled, and afterwards by a series of drawings through a “wordle” and over a “mandril” (both of peculiar construction), the metal is elongated and highly polished at the same time, and also is wrought to the required shape and size, internally as well as externally. One machine, worked by six men, will turn out 600 barrels per week, and by this cheap and simple process cast-steel barrels can be sold at little more than ordinary iron ones. The principles of this patent are also applicable to many other purposes.

Our next notice will be that of the BLAENAVON IRON AND COAL COMPANY's contribution, in Class I. (No. 29). They show iron bars, weldless tyrs, girders, &c., and we consider their weldless tyres well worthy of description. They are manufactured from cold-blast iron, without bending or rolling, being wrought from a solid mass of iron, much in the same manner, we should think, as Messrs. Hawksworth and Co. manufacture their weldless rifle-barrels. The advantages of tyres made by this process are, that being made in one mass the ordinary welded joint is avoided, and the tyres are entirely free from the possibility of breaking from imperfect welding, and also the deterioration in strength by the partial re-heating for the purpose of welding. The tyres are delivered in a condition of finish and truth, ready for putting on the wheels, without being turned on the "tread," so that the most desirable part of the iron (that is the surface, or skin) is left for wear, instead of having been cut away. The thickness and weight is much less in these tyres than those in ordinary use, and the increased durability from the absence of a welded joint, and the increased durability from the hard skin of the iron remaining intact, will, without doubt, prove to be advantages not possessed in the ordinary tyre.

The BOWLING IRON COMPANY (Messrs. MCNAUGHT, ROBERTSON, and CO.), of Bradford, Yorkshire, and 14, Cannon-street, London, exhibit in Class I. (No. 33) various sections and specimens of Iron, experimented upon in several different ways, also the materials from which the iron is manufactured. They represent the whole of these specimens to have been selected from their regular stock; and in no single instance prepared specially for the Exhibition. The coal which they use in their puddling and other reverberatory furnaces is shown, also the coke which is made from it, as used in the blast-furnace. The ironstone from the Black Bed coal measures, raw and calcined; the mountain limestone, from Skipton, in Yorkshire, used as a flux in the blast-furnaces, are also exhibited; and there is a curiosity near the end of the case which cannot do otherwise than interest all who are of a mechanical turn of mind. This is a cubical specimen of the coal limestone and ironstone, illustrating the exact proportions both in weight and bulk of each as consumed in the blast-furnace in the manufacture of the cold blast iron at the Bowling Works. They show, also, specimens of three different qualities of cold-blast pig-iron; refined iron, as manufactured from the pig; puddled iron, manufactured from refined iron; wrought-iron and rolled bars, in every size from 4 in. down to  $\frac{1}{4}$  in., all bent cold in different ways; forged axles 4 in. in diameter, bent cold; square bars, from  $\frac{3}{4}$  in. down to  $\frac{1}{2}$  in., bent cold; rolled tyre bars, bent cold, both with flange inside and outside; various sizes of bar iron from  $\frac{1}{2}$  in. to  $\frac{1}{4}$  in. in diameter, tied in knots when cold. Bars from  $\frac{1}{2}$  in. square to  $2\frac{1}{2}$  in. square, with holes punched through them, and afterwards drifted to different sizes, between  $2\frac{1}{2}$  and 9 in. in diameter. Boiler-plates dished and flanged, in one of which a hole was drifted to  $3\frac{1}{2}$  in. diameter, and afterwards worked out cold to its present form, which is that of a plate with rims round the top and bottom to correspond, and a hole through the centre 12 inches in diameter, showing in a remarkable manner the ductility and malleability of the iron. Samples of rivets of various sizes; sections of wrought-iron plates riveted together, and a large number of specimens from the Bowling iron, tested in different ways to show the fracture.

Amongst the specimens of Copper and Lead Ores is a collection sent by Mr. J. F. MORE, of Linley Hall, Shropshire (Case No. 283, Class I), and is well worthy of notice. These specimens have been raised from a

mine which was first worked in the time of the Romans. Its antiquity is proved by the fact of pigs of metallic lead being found near the entrance to the mine bearing the name of Hannibal, during whose lifetime they were doubtless made, and, consequently, are 2000 years old : some old Roman spades are also exhibited, which are made from the heart of oak, and were evidently used for mining purposes. This mine does not yield lead and copper alone, but also several other minerals of commercial value. There are splendid specimens of amethyst ; felspar, or china-stone, with manufactured specimens of china, which appear very good ; ochres, oxide of manganese, and sulphate of baryta, of which there is an immense supply. There is also a model of the estate, upon which are marked the direction of the mineral veins or lodes.

Several fine specimens of copper and lead ore from the Helston district are exhibited by Mr. F. HILL (No. 153, Class I.); the ores are sulphides of lead and copper, with small quantities of carbonate of copper. The Redruth Local Committee (No. 296, Class I.) show some very fine samples of galena and copper pyrites from Wheal Rose, near Helston, and Holmbush, near Redruth. Mr. BAGLEY, of Plymouth, exhibits some very good specimens both of copper and lead ores.

We must particularly refer to No. 334, in Class I., which is the contribution of Mr. W. B. BEAUMONT, M.P., of Allendale, Northumberland, and is a most instructive case. It illustrates the whole process of the manufacture of lead, from the raising of the ore to the finished ingot. The case is divided into three departments. The one to the left illustrates by specimens the processes to which the ore is subjected, and the specimens are all numbered. Nos. 1 and 3 are different samples of ore, in which state it is called "bouse" in the North of England. No. 2 is a slickenslide, or smooth surface formed by the rubbing of galena over fluor-spar—the slipping of one rock over another. No. 5, bouse taken from the trunking box, which collects the larger pieces, while the sludge is carried forward by the water. No. 6, breakings, consisting of ordinary bouse selected from bouse-stein and at the grate, which require to be sized by manual labour. No. 7, cutting, or waste. No. 8, crushed bouse, which is the same as No. 6, after passing through the crushing-mill; it is now ready for hatching. No. 9, chatts, or middle stratum of hatching-mill, which contains a small proportion of galena, and have to be passed through crushing rollers. No. 10, sieved ore from the bottom of the hatching sieve. No. 11, undressed smidum, being what has passed through hatching sieve into the tub of water in which the sieve is suspended. No. 12, the smidum after being dressed or cleared from foreign substances. No. 13, the undressed slime. No. 14, the dressed slime, a bad sample, produced by manual labour. No. 15, dressed slime, obtained by a patented invention of Mr. Branton, in which slime being freely mixed with water is allowed to fall on a revolving endless cloth, inclined at a moderate angle, upon which drops of water are constantly falling in order to keep the surface well wetted. The ore being heavy adheres to the cloth, and is carried up the slightly-inclined surface of the canvas, which passes round a roller to the cistern below, so filled with water that the cloth on revolving is slightly immersed, so that the ore is deposited, while the lighter particles of earthy matter and spar are carried down the canvas by the streams of water and run to waste. The ore thus obtained requires to be washed in the dolly-tub, and is then smelted. No. 16, dressed "slime" from the dolly-tub. The department to the right illustrates in the same manner the processes of smelting the ore. No. 17, roasted lead ore, done to get rid of the sulphur. Nos. 18 and 19, specimens of slag—No. 19 being granulated by being run into water. No. 20, crystals of lead from Pattinson's processes of de-silverising lead by crystallisation. The lead containing silver is melted, and allowed to cool slowly, at a certain period of the cooling crystallises partially, and the crystals separate from the liquid lead. These contain scarcely any silver, whilst the liquid lead contains nearly the whole of it. This crystallising process is continued several times, until all the silver is held by a very small portion of the original lead; this portion is then cupelled, the crystals being converted into ingots. Nos. 21, 22, and 23, fume collected from the flues. No. 24, sample of round litharge. No. 25, timed litharge, being passed litharge, having been passed through a sieve. No. 26, skinnings, showing very beautiful tints. Nos. 27 to 32, ingots of different descriptions. The centre compartment contains a large pig of lead, and a magnificent specimen of cupelled silver, or silver which is separated from the lead by cupellation of the residue from crystals in Pattinson's process. On the top of the case are several beautifully-finished drawings and sections of the estate from which the ore is produced.

The plans and sections were made by Mr. T. Sorwith, under whose supervision the whole of these large works are placed. The plan of Blackett level is made on a scale of 4 inches to 1 mile. The level commences near Allendale town, and is intended to be driven a distance of 6 miles 1567 yards, for the purpose of draining all the veins and ledges through which it is to pass. The other plans and sections are very interesting, and show the position and depth of the several pits, the portions

**PATENT HYDRAULIC LIFTING-JACKS.**—Messrs. D. ADAMSON and Co., of the Newton Moor Ironworks, Manchester, exhibit in the western annexe, near Easton and Amos's great horizontal centrifugal pump, an extremely simple and compact form of lifting-jack, upon a similar principle to that of the hydraulic-ram. The hydraulic-pump is placed inside, and at the lower end of the ram. The upper part of the ram and the head of the jack form a self-contained cistern for oil or water; no more fluid being used than is required to lift the ram full stroke. The pump-handle is fixed to the side of the head of the jack, and is provided with a screw driver to let out any accumulation of air by means of a small air valve in head of jack; when it is desired to let the head descend, the handle is drawn partly off the boss, and can then descend lower, so as to permit the opening of the air-valve. These jacks lift much more rapidly than any of the screw-jacks at present in use, and enable one man to do, according to the testimony of the Shildon Engine-Works Company, the work of four men, as compared with screw-jacks of equal power. The lowering is under perfect command, and can be regulated to any desired speed, or stopped at any moment with the slightest possible amount of manual labour. The hydraulic-jacks are made to lift from 4 to 50 tons and upwards, and in every case where they have been applied they have given the greatest satisfaction. They are at present used extensively by many of the principal railway companies and engineers, and amongst others by the Mersys Steel and Iron Company;

**G. B. Thorneycroft and Co., Wolverhampton; John Brown and Co., Sheffield ; and Messrs. Samuda Brothers, the eminent shipbuilders.**

**ECONOMIC METALLIC ROOFING.**—Owing to the want of space in the court devoted to Civil Engineering, Architectural, and Building contrivances, we find in a much more appropriate place—the open court connected with the mineral department (Eastern Annex)—a fine specimen of Messrs. Morewood and Co's Patent Continuous Roofing Sheets of galvanised iron. The invention is probably the greatest novelty in iron roofing which has been introduced since the previous Exhibition. The sheets of continuous roofing are 2 ft. wide, and are made of any length, from 50 ft. upwards, that may be desired. As compared even with asphalted felt, the first cost of the material and framework of a roof is the same, but the metallic roofing is infinitely more durable. Felt requires tarring and sanding annually, and then lasts but 10 or 12 years at most, whilst the metallic roofing requires no attention whatever, the zinc surface providing ample protection, except where exposed to smoke, &c., when a coating of paint, renewable every five years, is advisable, and will last 50 years. With regard to the application of the material in Canada, Messrs. Morewood have received a very flattering testimonial from a member of the Provincial Legislative Assembly, who says that the roofing which he has applied has been fairly tested by the united powers of snow, ice, frost, rain, and thaw, and that “the results are of the most satisfactory kind—not a drop of water having penetrated the roof during the whole season, for the first time since this wing of the house was built, nearly 30 years ago, although it has always been covered in the best style of art in tin, or the best galvanised iron in sheets. I am very glad to hear that you have made ‘improvements’ in the strength and quality of your roofing without much additional cost, inasmuch as the strength of the material used for my roof was one of the objectionable features in the opinion of some practical men (to the article). The other objection of the same parties (and which would have proved fatal to the successful use of the article in this climate)—viz., that the nails would draw with the frost, has been completely negatived, as *not one solitary nail has started*, although the roof was an old one, and, consequently, favourable to such an issue. Another decided advantage your continuous roofing possesses over any other in use in this climate, besides being water-tight, is that the snow does not collect on the roof in the same manner and to the same extent that it does on roofs covered with a material composed of a number of joints or seams. On the contrary, on the slightest thaw the snow or ice slides off the roof, leaving it clean and dry, instead of accumulating in enormous masses which, by their weight, injure the roof or when the thaw sets in

sometimes result in serious, if not fatal, accidents to persons who may be passing at the time." The continuous roofing, also, can be fixed by skilled labour—any labourer on a farm or in a factory who can use a hammer being capable of making a first-rate and durable roof with Messrs. Morewood and Co. also exhibit galvanised tinned iron wire, galvanised water and gas tubes, galvanised wrought gutter and pipe, galvanised wire of all kinds, galvanised tanks and cisterns, and "patent tin" for gas meters. Their collection will well repay a visit.

**RARE METALLURGICAL PRODUCTS.**—Platinum, iridium, and palladium have usually been known only in the laboratory, and even then in small quantities; in the eastern annex, however, will be found some splendid illustrations of the precious metals, and their preparations, exhibited by Messrs. JOHNSON, MATTHEY, and Co., of Hatton-garden. The cost, amounting upwards of £6000, worth of metal, is placed on the right-hand of the stairs from the colonial courts to the eastern annex, and forms a most attractive feature in the mining and metallurgical department. Platinum was discovered, as we are reminded by Mr. Robert Hunt, in his very excellent "Handbook to the Industrial Department," by Ulric, in 1783, the Dr. Wollaston was the first to render it available. As we are assured to regard the metal platinum as practically infusible, since no heat that can be obtained with fuel will melt it, and the temperature of the smelting glass-house furnaces have no effect upon it, the large input of weight 3200 ozs., and which has a market value of nearly 4000l., is one of the most attractive feature in the case; it was obtained by Mr. Sc. Deleville's oxyhydrogen process, which is at present being carried on by Messrs. Johnson, Matthey, and Co., and by which the melting is effected with the greatest facility. The platinum boiler is the next attractive vessel now exhibited has been in use, and is capable, with ordinary care, of producing 2 tons of rectified acid per 24 hours. The exhibition shows that the weight of precious metal in this boiler per ton of acid produced is only one-fourth to one-eighth of that of vessels ordinarily used for this purpose. The chief points of improvements introduced by John Matthey, and Co., are these:—The heating surface is almost entirely bottom, not the sides, hence the direct action of fire, and the metal does not become hot with non-conducting fur or dirt, as in side fires; and variations in the height of the fire do not endanger the contact of the fire with parts not in contact with the liquor. The shallow form (instead of a deep form) secures the more speedy evaporation of steam from the body of the liquor, with the less forcing of the liquor into boiling over, and also secures the least hydrostatic pressure, which tends to dilute, and aggravates the effects of leakage, if it occurs. The same shallow form also, allows the bottom to be made of considerable width, without support or construction (such as brick arches, &c.) to the free and direct heat of the fire. The act of setting this vessel is extremely simple and safe, being on an iron ring, formed so as to receive heat, and serve as a heater to the lower part of the side; in this way the few tiles, placed on the top of the ring around the boiler, can be removed at any time to take out the boiler, for the purpose of effecting its repairs. This is a consideration, when the apparatus continually boils the interior boiler; also, the furnace thus arranged, is much more compact than usual. The parts of the vessel not needing strength to support the liquor are thin. The subject to special wear inside it is proposed to coat with gold—1. The vessel is made of such general form as to cover the heating surface, and to enable it to contain space for liquor, and its boiling froth, by the least surface of platinum. It is intended to work with a continuous inflow and outflow of liquor, regulated by a cock (one at the inflow), while the outflow is by a process of overflow, which tends to insure against the inconveniences of the usual system; such as the being drawn off too low, or being allowed to rise too high, and then there is no cock needing any attention. The overflow is by a slanting pipe (into a pipe) covered with a spherical sil-joint, a plug which is in practice remarkably efficient, so as to keep quite dry and clean outside. This pipe, having (preferably) another sil-joint (not shown) below its last elbow, leads the rectified liquor to the bottom of a small platinum cooler, surrounded by water, and containing a body of coarse vitriol, into which the boiling liquor is thus merged. This avoids many inconveniences and expenses connected with a long platinum tube, as a siphon or water-cock. The overflow nozzle is supported by a trapped pipe from the heating coil inside the boiler, with the rim at the level at which it is proposed to maintain the liquor. This rim is made of sufficient linear extent to carry off the foam, bubbles, so freely into the collector as, in regular working, to prevent the foam from overflowing. This is a most important arrangement for leading to a certain level for the liquor; the boiling of vitriol being an action so difficult to control, heating surfaces of platinum are made "dead," or rough, the others are polished by battery, to increase their absorption of heat; while the other surfaces are very rough, to make them retain their heat. The economy in fuel, labour, and space, is very great. The process of rectifying is regulated with unusual accuracy and ease by an indicator (patented) inserted in a tube in the top of the boiler. The indicator can show moment the precise strength of the acid in the boiler; that is, how much of the hydrometer the liquor would mark if it were then in a cool state. The indicator acts by the variations of heat at which each different strength boils. It is a novel application of the spiral coil of a compound lamination of two unequal expansion by heat. This instrument is here arranged in a new and improved form, and with important improvements, without which the said spiral (already) would not be applicable to measure correctly, with uniformly similar induction a wide range of temperature. It is composed of alloy, which do not become strained by their own unequal expansion of heat—alloy, having not too great a coefficient of expansion, and having the utmost elasticity and power of retaining it, as possible, at high temperatures, so as to prevent their inequality of expansion from giving a permanent set to their substance. For this end, also, more than nine are employed, as preferable, united into one, and having successively greater degrees of expansion. This improved instrument forms a very superior gauge for general purposes.

The remaining articles in platinum exhibited by Messrs. Johnson, Matthey, and Co. comprise tubes, crucibles, wire, sheet, foil, and wire. The tubes are soldered with pure platinum, advantages being thus obtained which will be at once appreciated by those who have been in the habit of using tubes of the usual construction. The metal is not strained in this case when the tubes are made by pressure, and the use of platinum is of gold as the soldering material admits of the tubes being made of uniformity. These tubes can be made of any length, size, and thickness. Before passing to the next metal, we may mention that there is an alloy of 80 per cent. of platinum with 20 per cent. iridium, and the total value of the platinum exhibited is £4980. The metal iridium is represented by a melted ingot weighing 27½ ozs., and some sponge in its former being, of course, reduced to the metallic state by the oxygen process. There is also an alloy of pure iridium and osmium, used in the manufacture of the so-called everlasting pen points; the value of this is £1. 6s. per oz. The other compounds of iridium raise the aggregate value of this portion of the collection to £251. Palladium, in the form of wire, sponge, red salts, and chloride, are also exhibited, as is gold in various states of preparation, according as it is intended for the use of the smith, jeweller, china and glass manufacturer, photographer, chemist, &c. There is silver pure, and in the various forms in which it is used in the manufactures, and commerce, and specimens of metals of great intrinsic value in the metallic state, and in various combinations. In this category is included rhodium, osmium, ruthenium, and the non-metallic elements silicon and boron; and to render the collection complete the exhibitors also show the purple powder of Cassius and oxides of uranium for colouring glass, the nitrate of uranium used by photographic firms, and persons resident abroad, to determine within a carat the quality and value of various alloys of gold. Messrs. Johnson, Matthey, and Co. long enjoyed a high reputation as assayers and metallurgists, but their name in the International Exhibition is certainly calculated to add to their

**ECONOMIC CRUCIBLES AND MELTING-POTS.**—Upon several occasions we have referred to the very excellent crucible manufactory the PATENT PLUMBAGO CRUCIBLE COMPANY; and we observe that eastern annexé, upon the incline beyond the subway of the entrance Horticultural Gardens, the company have a very good show of their factories. Among the specimens shown are some that have been made 1000 oz. crucible, we see by the certificate attached from Messrs. Fox and Matthey, has melted 60,000 ozs. of silver, and is capable of 15,000 ozs. more. There is also a crucible from the Royal Mint that worked nine days melting bronze. Messrs. Brown and Wigram melters to the Bank of England, send a crucible they have employed melting gold. One crucible that has been worked 61 times, and is 54, are from Messrs. Milne, the gas engineers of Edinburgh. Messrs. Son and Christie, brass founders, of Glasgow, contribute some that done 54 and 56 heats, melting brass and copper. These crucibles are exclusively employed in the Woolwich Arsenal, and other Government departments, including the Royal Mints, and also in the Indian and Australian Mints, and by several of the continental Governments. We give a few extracts from the testimonials received by the Company. Mushet, of the Royal Mint, certifies that the crucibles of the Company have for some time been adopted in that establishment, in exclusion of all others, and have been found to be of excellent quality. The original cost is considerable, but in use they are in the end more economical than any other crucible. On account of their durability in the fire, and general freedom from casualty, Colonel L. Woolwich Arsenal, says they have been employed in the Royal Laboratory for melting gun metal, &c., for upwards of 21 years, and are answer better than any other kind. The quantity melted in any one crucible varies from 25 to 36 cwt. Lieut.-Col. Clark states that they are superior to any crucibles previously supplied to the Royal Engineers. Woolwich Arsenal, the length of time they last effecting a saving in comparison with crucibles of other manufacture. The Director of the Enameled Works, in Rotterdam, writes "that they very far surpass

in their durability, and that they shall never use any others, the superiority in addition to their durability consists in their never cracking in the furnace, which prevents the danger of losing the liquid metal, a circumstance that often happens with the ordinary pots; thus, for example, in a No. 35 we have melted 1239 kilos. (nearly 3000 lbs.), consisting of pieces of carbon and copper, whilst to melt the same quantity of metal would have required at least seven or eight German pots. The master of the Paris Mint says that each crucible runs from 40 to 60 pourings, and can with safety be dipped in cold water when at red heat, and used again immediately, as if it had not undergone any change of temperature, and that they never have an accident. Mr. Osborne, Bishopsgate Foundry, London, says he should unhesitatingly recommend them to every brass founder for their durability and economy. These few extracts lead us to the conclusion that they work on the average fully 40 heats, never crack, and being composed of carbon, the saving of fuel is very considerable. The Patent Plumbago Crucible Company exhibit various kinds of crucibles other than those for which they own the patent right, and keep them in stock merely for the convenience of shippers, but do not recommend them, regarding their patent crucible as infinitely superior. When first used the patent crucibles require careful annealing, but afterwards they require no care whatever. The several kinds of crucibles being exhibited side by side gives an excellent opportunity for judging of their relative merits.

**UTILISATION OF TIN-PLATE WASTE.**—The large quantity of tin-plate was annually made, and the low price which it realises in the market, give great inducements to chemists and others to attempt to bring the products obtainable from it into a saleable form; and in proportion as more or fewer of the component parts of the waste substance are made marketable, so will the commercial value of an invention be judged of. In the American department, on the western side of the north-western transect, will be found an interesting case of products, exhibited by Messrs. E. and C. Kuhn, manufacturing chemists, of Sechshaus, near Vienna, which shows that they have succeeded in obtaining from tin-plate clippings pure ammonia, prussian blue, and several minor articles, all of which are of fair commercial value, and readily saleable. The process involves nothing injurious to health; and a capital of 150L or 160L is sufficient for the purchase of the entire plant and apparatus necessary, upon which outlay the inventors calculate that a profit of at least 80 per cent. may be realised. Messrs. Kuhn are working the invention in Austria, but are willing to sell the right to work it in other countries.

**STEEL SPRING CLIP FISH-JOINTS.**—An important improvement in the permanent way of railways is exhibited on the eastern side of the western annex, in the shape of a tempered steel spring clip, intended as a substitute for fish-plates. The inventor is Mr. G. E. Dering, of Lockleys, Herts, and from the success which has attended the use of the joint no doubt is entertained that its adoption will become general. Bolts, nuts, &c., which have hitherto been inseparable from rail-joints, are rendered unnecessary, yet a stronger and smoother joint than usual is the result. The spring-joint could, without doubt, be applied in one-tenth the time of ordinary fish-plates, and all damage to the rails is avoided. Mr. Dering also exhibits tempered steel keys and spring trenails, each of which appears to possess several advantages over those in ordinary use. The spring key possesses all the advantages of wood, and is ten times more durable, holding the rail very firmly, and being unaffected by moisture or dryness. It is proposed to use this key in joint-chairs, in which position it is found to possess all the advantages of an ordinary fish, though the cost is but one-half. The advantage claimed for the tempered steel trenails is that they are more efficient and durable than either wooden trenails or iron spines; and that although not loosened by vibration, can be readily extricated when requisite, and without injury. A pair of brazed joints, however, is probably the most interesting part of Mr. Dering's collection, since they have been submitted to a long practical test. The joints exhibited have carried the whole traffic of the up main line of the Great Northern Railway for nearly four years, yet are now absolutely perfect. It is calculated that during the time the joints were down 86,000 locomotives, and nearly 4,000,000 wheels passed over them, and we understand that the sole cause of their removal was to enable them to be exhibited.

**ANTIFRICTIONAL SAFETY-CAGE.**—In the south court of the eastern annex, and just beyond the Horticultural subway, we noticed a very ingenious and effective safety-cage for miners, the invention of Mr. J. T. Calow, of Staveley, Derbyshire. The chief recommendation of the cage is that it is extremely economic, and that but one spring, in a well-protected position, is used. The grips which take into the spears never touch except upon the breakage of the rope; and whilst in other safety-cages the spring is acted upon at every ascent or descent, Mr. Calow has observed that whenever the cage is supported, whether by the tension of the rope or from being at rest on the floor of the mine, the spring remains in its normal condition. Immediately, however, upon the breakage of the rope, the spring comes into action, and by the aid of simple levers which catches grip the guide-rods, and the safety of those in the cage is secured. The spring can at any time be replaced for 2s., and the cost of the entire apparatus—both for providing against the breakage of the rope and over-winding—is proportionably cheap. The over-winding apparatus consists of a pair of expanded hooks, which upon being drawn through a slot at the top of the head gear disconnects the cage from the rope, and all danger is at an end. The apparatus is in use in pits belonging to the Butterley Company, West Silkstone, West Staveley, and elsewhere, and in every case has given entire satisfaction. Mr. Moody, the viewer of West Staveley and several other collieries in the district, has given the inventor a very flattering testimonial, in which he states that during the time Mr. Calow's cage has been in use there ten breakages have occurred, and that further accident has in every case been prevented by the apparatus; three of these accidents, Mr. Moody considers, would have been fatal but for the safety apparatus.

**CHEAP AND EFFECTIVE PUMP.**—In the western annex, between the two great pumps exhibited by Messrs. Gwynne and Co., and Messrs. Easton and Amos respectively, is a small yet not less effective machine, with which our readers are not altogether unacquainted; we allude to the chain-pump of Mr. J. U. BASTIER. The pump exhibited has a tube of 4½-inch bore, and is worked by a 2-horse power engine only, yet raises with the greatest facility from 450 to 500 gallons of water per minute, the pulley revolving at the rate of 80 to 84 turns per minute. The entire space occupied by the pump does not exceed 4 ft. by 1½ ft., and this space would be equally sufficient for pumping from the deepest mine. Since the first introduction of the chain-pump by Mr. Deprony, some 70 years since, it has been acknowledged that the chain-pump offers many advantages, but it is only recently that Mr. Deprony as a packing for the discs, which, as is well known, are protected at short intervals along the entire length of the endless chain, were made of leather, which, hardening in the water, caused a large amount of friction upon the interior of the tubes, and these tubes, again, being of the same diameter from the bottom to the top of the column, a considerable portion both of the water and of motive-power was wasted. Since Mr. Deprony has come into more extensive use, and Mr. J. U. BASTIER's principle, with the addition of improvement, which brings it nearly to perfection. For the flat disc employed by Mr. Deprony he substitutes a small cylindrical piston of gutta-percha; and lastly, instead of a tube of uniform bore, he employs a tube more contracted at the exterior, the disc entering the narrow part of the tube. The pump acts as a force-pump, or as a suction-pump, according to the depth of the water in which it is immersed. It acts as a force-pump when the level of the water to be pumped exceeds 40 in., for then as, by the well-known laws of hydrostatics, the water will rise in the interior of the tube to the same level as on the exterior, the disc entering the tube will force the water already in the tube before it. But should the water in which the pump-tube is immersed be less than a yard in depth, the suction principle comes into play; in this case the disc entering the tube after moving upwards about 4 in. (for we should say that the bottom of the tube is trumpet-shaped, to facilitate the entry of the water), reaches the contracted portion of the tube, and draws the water after it, ready to be forced onward by the following disc. It will be seen that in this compressed space the discs becoming packed by the weight of the India-rubber, play the part of a piston, the suction being produced by a driving-band and steam-power, or by any other motor.

Mr. BASTIER's pump has attracted much attention since the opening of the Royal Carrige Exhibition, and we understand the inventor has already received many orders for all quarters of the globe. We have never seen an equal quantity of water raised by a pump with a tube of equal diameter, and, there-

fore, unhesitatingly direct to it the attention of all using pumping machinery. The power of the pump may be increased to any extent, since the greater the speed of the pulley the greater is the number of the discs which pass through the tube, and the greater the quantity of water raised. The power of the pump, however, is not its only recommendation; the space it occupies in the shaft is extremely small, and as the descending part of the chain counterbalances the rising portion, balance-bobs and all similar contrivances are unnecessary. A framework of wood or iron supports the axle upon which the disc-pulley is fixed, the strength, of course, depending upon the depth from which the water is to be pumped, and the weight of the tubes, whilst the action of the pump is regulated by an adequate fly-wheel. In addition to the improvements above referred to, the different forms of disc, the substitution of India-rubber washers for leather, and the contracted tube, we may mention that the upper disc-pulley is provided with indentations into which the discs fall; they are thus kept always uninjured, whilst the motion of the chain is smooth and uninterrupted; and at the lower end of the pump-tube a small wooden pulley, placed slightly behind the tube, is provided, which guides the chain and discs into the mouth of the tube.

**COG-WHEELS SUPERSEDED.**—A new system of transmitting power from a horizontal to a vertical axis, without cog-wheels, is exhibited by Messrs. FONTAINEMOREAU and GILBEE, of Finsbury, in the western annex. The machine is the invention of Mr. L. Thirion, of Belgium, and consists of a helical spring, having two axes at its two extremities. If these two axes are placed in a relative position with regard to one another, so as to make either a right acute or obtuse angle, and if motion is given to one of them by means of a crank-arm, water-wheel, or steam-engine, the motion will be transmitted to the other axis without noise or shock, and only with the friction of the bearings. The power transmitted by this means is, therefore, limited only by the strength of the bars composing the springs. The inventor has successfully applied this new power to a windmill having no cog-wheels, and which is composed of a hollow wooden or iron upright, on the top of which is placed a flexible spiral spring with its two axes, one of which passes through the standard and the other rests on a support forming the vane of the mill. By the aid of this invention motive power may be secured continuously, and at a very slight expense.

**BAND-LINK CHAIN CABLES FOR MINES.**—The importance of good and cheap chains for mining purposes is too well known to require comment, we would, therefore, direct the attention of the mining community to a small chain-cable making machine, exhibited on the eastern side of the western annex. As it is admitted that tender twigs bound together in a fascine acquire collectively an enormous strength, the soundness of the principle upon which the band-link chain-cable is made would be at once understood, even had the great strength of the chain not have already been tested by actual experience. Each link of the chain consists of thin hoop-iron, wound in the form of a link until the desired thickness has been attained. Thickness for thickness, the band-link chain is about twice as strong as an ordinary first quality chain, and sudden rupture is almost impossible. It is urged by the inventors of the new chain (Mr. Sisco, of Corsica, and Madame SINIBALDI, of Greenwich), and not without reason, that the chain-cable makers' assertion that their cables have been tested, and cannot, therefore, be defective, cannot be relied upon, and even that test is against the safety of a chain, for when a chain is tested, say to 120 tons, if 1 ton more were added the chain would snap. Everybody knows this: the test is injurious, then, yet it is indispensable in this present rotten system. Respecting the welding and the flaw, which are the greatest enemies of the present system, no one will dare to say that they can preserve the chain-cable (now in use) from these; if the welding is too hot, it is bad—if too cold, it is bad—if it is good, you cannot ascertain it; and even when the welding is good, the iron has been so much heated for the welding that it makes it brittle and weak. But in admitting that by mere chance the iron should not be weakened, if a flaw should be in one of the links it would make the whole chain dangerous, yet such a flaw could not be pointed out by anyone. In the band-link chain the welding, which is unsafe and uncertain, is done away with, the hoop-iron is coiled cold, and when in the state of a chain the method of brazing heats so equally every grain of the iron that the union of the different layers is perfect, and must be perfect. So the strength of the chain is immense under a very small volume; every layer of iron has a skin, and the links made of 16 layers has 16 skins, while the wrought-iron links have only one skin, which makes them snap when it is cut, but the links will not snap, and cannot snap; if one skin is broken 15 would remain, and ample warning would be given before an accident has resulted. The result of the Government tests of Sisco's chain is very interesting. The chain was 2 in. broad and 2 in. thick, with stays in the centre of each two links. When placed in the testing-frame, attached to a testing-chain of 2½ in. in diameter, and on the hydraulic power being applied, one of the links was lengthened five-eighths of an inch, and the other one-eighth of an inch, when it reached a strain of 110 tons, and the 2½-in. testing-chain broke off in two places when the strain reached 114 tons. The hoop-iron chain had some openings in one of the links, which had been imperfectly brazed, but it did not appear to have been made otherwise defective. One link of the same dimensions, 2 in. thick and 2 in. broad, was afterwards placed in the testing-frame, and when a strain of 70 tons was applied it had lengthened one-twelfth of an inch; with 80 tons, one-eighth of an inch; with 100 tons, three-sixteenths; with 110 tons, ¼ in.; with 115 tons, five-sixteenths; and when it reached 120 tons strain it was considered advisable not to continue the strain, as it was so great as to loosen the stone frame on which the machine rested, and liable to damage other parts of the powerful iron frame of the machine. The strain applied on this occasion was 1 ton more than had ever been previously applied, and the hoop-chain was only slightly opened on one side. With such results as these the facility for making a really reliable chain cannot be doubted, yet we are assured that the cost per cwt. is not more than that of common chain; and there is the additional advantage that the machine is so small and cheap that it could be employed at every mine or colliery, or could be carried by every ship, and used by the sailors in case of the loss of a cable.

**LARGE IRON RAILWAY BRIDGE FOR INDIA.**—There is in course of construction, in Manchester, an iron railway and carriage-way bridge combined, of whose character and dimensions probably very few of the inhabitants have any conception. Messrs. Ormerod, Griverson, and Co., of the George's Ironworks, Hulme, have just completed the first of a series of 12 spans, which are to constitute an iron lattice bridge over the river Jamna, near Delhi. The bridge is for the East India Railway Company, and is from designs by Mr. A. M. Rendel, C.E., London. It is so constructed as to answer the double purpose of a railway and an ordinary road, the railway being along the top and the roadway beneath it. Each girder is 21 ft. long, and this gives a clear span of 205 ft. between the piers, of which there will be 11. The 12 spans will, therefore, form a structure having a total length of over half-a-mile. The first span has been completely riveted up in the works, and loaded with nearly 450 tons of pig-iron. The deflections were carefully noted, but the details would not be of general interest, and it may be sufficient to state that the result of the test was even more favourable than was anticipated. The iron has been supplied by the Shelton Bar Iron Company, near Stoke, and was required to bear a tensile strain of 21 tons to the inch of section. The breaking strain is estimated at from 2500 to 3000 tons, equally distributed, which leaves ample margin beyond any weight to which it will be subjected. The bridge, notwithstanding its great length, has a light and airy appearance.

**SLATE-DRESSING MACHINES.**—At the Maen Offeren Slate Quarries, Festiniog, Mr. Henry Gilson has introduced some improvements in the machinery for cutting and trimming the edges of the slates, and has obtained a patent for his invention. The machine consists of a wheel in the form of an ordinary fly-wheel, working upon horizontal axes fixed on a strong frame, with two, three, or more knives for cutting and trimming the slates, fixed at equal distances on the side of the wheel, or if two slate cutters work at the same wheel then another set of knives may be fixed upon the other side of the wheel in alternate order. The knives should be fixed at such distances from the spokes of the wheel as to admit of the slate being presented to the knife without the projecting end coming in contact with the spokes of the wheel. The knives should be of sufficient length to cut the sides of the largest slates in ordinary use. They may be fixed either parallel to the spokes of the wheel or diverging slightly from them, but radially from the axis of motion, so that the inner end of the knife shall first come in contact with the slate. The slate to be cut is rested obliquely on a cutting edge fixed on the framework of the machine, and receives the revolving knives progressively from its inner to its outer extremity, as from a pair of shears. The knives to make progressive cuts more gradual may be slightly curved upwards, like a scimitar. The size of slate is regulated by gauges, as usual. The knives may form the spokes of the wheel, but he prefers them, as described, a short distance from the spokes.

**INCREASING THE ILLUMINATING POWER OF GAS.**—Mr. W. J. Williams, Warrford Court, provisionally specified an improved process of charging illuminating gas with the vapour of hydrocarbons for the purpose of increasing its illuminating properties. He proposes to cause the gas in its passage from the meter to the burners to pass through a series of rows of perpendicular cords or threads saturated with hydrocarbon liquid, by which it becomes charged with hydro-carbon vapour, and as the gas is liable to become overcharged with the vapour, and cause a waste of the hydrocarbons, often becoming very troublesome by condensing and filling up the pipes obstructing the flow of the gas, and flowing out of the burners; when opened he causes the gas to pass through a condenser, where the excess of hydro-carbon vapour is condensed, and the liquid resulting from the condensation flows back to the evaporating chamber, and some other receptacle from which it can be returned to the evaporator, while the gas in a properly charged state passes on to the burners.

## Meetings of Mining Companies.

### KELLY BRAY MINING COMPANY.

A general meeting of proprietors was held at the company's offices, Austinfriars, on Thursday, Mr. J. FIELD in the chair.

Mr. E. KING (the secretary) read the notice convening the meeting, and the minutes of the last were read and confirmed.

A statement of accounts for the four months ending April showed—

|   |                      |
|---|----------------------|
| Error in last balance-sheet .....             | £ 50 6 1             |
| January min. cost, merchants' bills, &c. .... | 401 5 10             |
| February ditto .....                          | 418 7 11             |
| March ditto .....                             | 418 19 0             |
| April ditto .....                             | 395 8 9              |
| Forfeited shares .....                        | 22 11 0 = £1706 18 7 |
| Balance last audit .....                      | £ 47 8 3             |
| Call .....                                    | 604 3 2              |
| Copper ore sold .....                         | 841 1 11 = 1492 12 4 |
| Leaving debit balance .....                   | £114 5 3             |

The report of the agent was read, as follows:—

*June 10.—We are driving and stoping in the 75 east in the direction of the shoot of ore which was worked on the levels below, and yielded large quantities of ore; at the above-named point the lode has improved during the past fortnight; it is now 2 ft. wide, producing upwards of 2 tons of ore per fm.—a very promising looking lode going east in whole ground. The 35 has been driven east in the past four months 9 fms. 3 ft., and is now about 52 fms. east of the western engine-shaft; the last 12 fms. which have been driven have yielded a fair quantity of ore; the lode in the end is still looking very kindly, producing 3½ tons of fair quality ore per fathom; the back is of about the same value for the above-named length, 12 fathoms, and the ground is whole to surface the entire length of the set, which is three parts of a mile in length eastward. In the past month we have communicated a rise from the back of the 40, which has given good ventilation; and it is also more convenient for getting away the stuff, as there is a railroad in the 40. If the same prospects continue as at present in the two above-named levels, the mine will be in a much better position ere long.—Eastern Mine: The 70 has been driven east in the past four months 11 fms. 4 feet, and is now east of shaft about 41 fms. 4 ft. The lode will average throughout this drive from 1 to 2½ ft. wide, composed of quartz, mica, feldspar, blonde, and occasionally stones of ore; the lode at present in the above-named end is of much the same character as for some time past, but the ground appears to be changing; there is more elvan showing in the end than for some time past, which is of a mineralised character. I would recommend a trip-plate to be cut at once, and a railroad laid down at the above-named level, which will very much facilitate the clearing of the stuff from both the levels—viz., the 70 and 60, as the stuff can be passed down from the 60 through the winze which is communicated from one level to the other; by so doing one plat will answer the purpose of both levels. The winze which we commence in the bottom of the 60, about 20 fms. east of the former winze, is suspended for the time, owing to there being too much water to contend with before it is drained by the 70, and the men are put to drive the 60 east, which is now about 75 fms. east of cross-cut, in which the lode is 1½ ft. wide, composed of quartz, mica, blonde, and occasionally stones of ore; and the water is freely issuing from the end, showing indications of there being a porous lode ahead, and the ground is easy for exploring. I would recommend the following tutwork operations to be prosecuted most vigorously—viz., drive and stop in the 75 east by six or more men; drive and stop in the 35 east by a full pare of men, and sett all the ground which will pay on tribute in the western mine. In the eastern mine, drive the 70 and 60 by full pare of men eastward, and sink winzes when required for the ventilation and proving the ground; by so doing there is every chance of meeting with productive ground dipping from Kit Hill west, as it is the general dip of the ore-bearing ground in the locality. To carry out these operations properly, I estimate the monthly cost will be from 350L to 400L per month; and if the same prospects continue the returns will be increased. We have now about 70 tons of mudiic ready for sale on the mine and at quay. We are dressing ore for the next sampling with all possible dispatch.—S. JAMES.*

The CHAIRMAN said, although the committee had the fullest confidence in the agent, yet they had thought it would be satisfactory to the shareholders to have the opinion of a disinterested authority, and had accordingly called in Capt. Rowe. From that report it would be seen that the upper levels in the western mine were really looking much more promising.

The SECRETARY read the report referred to. It stated that at the western mine the 75 was entering a new run of ore, the present end being worth about 2 tons of good ore per fm. The 35 was now passing over a good lode, and the present end was turning out from 2 to 2½ tons of ore per fm. With respect to the bottom of the mine, he recommended that the pitwork should be pulled up to the 105, as the nature of the ground was uncongenial, and as from that point to surface hundreds of fathoms of whole ground were standing, which presented excellent chances of good discoveries. In the eastern mine he recommended the prosecution of the 60 and 70, as well as the pushing of the ends eastward with all possible dispatch. Capt. Rowe considered the chances very good for future discoveries.

A SHAREHOLDER said that the views of Capt. Rowe were in accordance with those of their own agent. He considered that the prospects of the eastern, as well as the western mine were much more satisfactory than for some time past. He had no reason to believe but that the ore ground now being discovered would increase, and that at another meeting it would be shown that no further call would be required.

The SECRETARY said that if the 35 and 75 ends continued as productive as at present it would clearly prove there was a distinct shoot of ore coming from the east; and that the 35 end was passing into another shoot of ore eastward, of a similar character to that in the 75. If so, having 20 fms. of backs, which would soon lay open a very large and productive piece of ground, and looking at the agent's report referring to the eastern levels, and seeing that the 70 end was in ground of a mineralised character, with indications of the elvan-course being near at hand, he fully believed that some important discoveries would take place in the coming four months, and that this property would again take a prominent position.

The report was received and adopted, and the accounts passed and allowed.

Upon the proposition of Mr. MAJON, seconded by Mr. DUNSBURY, it was resolved that the recommendations of the agent and of Capt. Rowe, with reference to the pitwork in the western mine, be forthwith carried out. A call of 2s. 6d. per share was made.

Messrs. Field, Richards, and Sharp were appointed the committee of management.

A vote of thanks to the Chairman terminated the proceedings.

### CHARLOTTE UNITED MINING COMPANY.

A general meeting of proprietors was held at the company's offices, Austinfriars, on Tuesday, Mr. PHILLIPS in the chair.</p

was passed to the effect that the 60-in. engine and pitwork should be removed from Tredegar to the Charlotte engine-shaft.

The CHAIRMAN said the next question to consider was what operations were to be adopted for the future.

Mr. J. HOSKING said he had purchased his shares with the intention of having the entire management of the mine into his own hands.

A SHAREHOLDER suggested that as Mr. Hosking had recently purchased so large an interest he should be appointed local purser, and that a committee should be appointed to control the finances in London—at any rate, until next meeting.

Mr. J. HOSKING said that would not accord with his views, his object in purchasing such a large interest being to obtain the entire control of the mine.

Mr. FOOOCK wished to know whether that meant that Mr. Hosking was to receive all monies and dispose of the same, and to have full control over the operations at the mine?

Mr. HOSKING replied that such was the case, but the expenditure would, of course, be examined into at each four monthly meeting.

The CHAIRMAN having enquired if any gentleman would propose a resolution to that effect, and no response being made,

Mr. J. HOSKING said he should propose the resolution himself—that Mr. J. Hosking, of Marazion, should be appointed purser and manager.

Mr. HUMM seconded the proposition, but that gentleman, not being a registered shareholder, could not legally move, second, or vote upon any proposition.

The CHAIRMAN, after some discussion, finding there was no seconder to the proposition, and seeing that Mr. Hosking held 2400 shares, and wishing the matter to be carried through in good spirit, seconded the proposition.

The SECRETARY said he was glad the Chairman had taken that step; and he (Mr. King) could only say that he would do all he possibly could to further the views of Mr. Hosking, in promoting the best interests of the undertaking. He believed that from Mr. Hosking's knowledge of mining properties in that district, and seeing that he held a large interest in the mine, his supervision of the future operations would prove beneficial to the undertaking. He considered the quicker the Trenow engine was removed to Charlotte proper the sooner would the shareholders be relieved from calls. He had a very good opinion of Charlotte United; the ground was easy, and the ore of a very rich character.—It was resolved that Mr. J. Hosking be appointed purser and manager.

Upon the proposition of Mr. Hosking, seconded by the CHAIRMAN, the thanks of the meeting were given to Mr. E. King, the secretary, for his past services, and begged to state that the mine had not been removed from his office on account of any dereliction of duties, but from a wish, on the part of Mr. Hosking, who has purchased a large number of shares, to have the sole management in Cornwall.

Aero rail call of £5. 9d. per share was made; and a resolution was passed authorising Mr. King to hand over the books and papers to Mr. Hosking at an early day.

The proceedings terminated with a vote of thanks to the Chairman.

#### RIBDEN MINING COMPANY.

At a meeting of shareholders, held on Wednesday, at the Midland Hotel, Derby (Mr. THOMAS CULLEN in the chair), Mr. W. C. WATSON (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.—The CHAIRMAN opened the proceedings by stating he much regretted to inform the shareholders that, in consequence of the preference shares not being taken up in conformity with the resolution passed at a previous meeting, he saw no alternative to winding-up the company; and the result was a resolution being carried of a voluntary winding-up of the company forthwith; at the same time the Chairman and the greatest number of the shareholders who were present expressed the greatest confidence in its ultimate success, and hoped that a new company would be at once formed to set it realised. Mr. Wood, a director, and Mr. GILLESPIE, a shareholder, have had the opinion of two practical miners, one of whom, who has had more than forty years' experience of this district, says—"The appearance of the lode in the 70, west of Gilbert's shaft, which is charged more or less throughout with beautiful rich copper, common to this district, is enough to justify the opinion of any practical miner that, as you approach the junction of the shale and millstone grit, in connection with the intersection of the several ledges crossing to the west of your present working, a rich mine will be the result. The work on the mine hitherto done is most substantial, and on the most scientific principles, and all the heavy outlay is done with I, therefore, strongly advise you by all means to urge the accomplishment of reaching the junction of the different cross-ledges and changes of rock before naming, and not to sacrifice such a valuable property." The other says—"From my experience of mining in the several counties in England and Wales, I do not think there is a better trial than you have before you in the 70, west of Gilbert's shaft; and, in my opinion, you will soon meet with large bunches of ore in that direction." It will, therefore, be seen, in the event of the present company being wound-up, that a new one may be formed under very favourable circumstances.

#### LOWER TALDRWS SLATE COMPANY (LIMITED).

An ordinary half-yearly general meeting of proprietors was held at the company's offices, 32, Bucklersbury, on Tuesday.—Mr. PONSONBY A. MOORE in the chair.

Mr. F. J. KEARNETT (the secretary) read the notice convening the meeting, and the report of the directors, as follows:

In submitting for your consideration the following summary of their management of your property during the past nine months, and more particularly the period which has elapsed since the general meeting in December last, your directors have satisfaction in stating that nothing has since transpired to diminish in any way their confidence as to the ultimate success of your undertaking; and whilst regretting, in common with yourselves, the failure of their original anticipations of an early produce of slates, which were founded on professional reports laid before the shareholders, they see no reason to doubt the intrinsic value of your property, and that it is one which, when fully developed, cannot fail to realise satisfactory results. At the December meeting your directors gave a short statement of the position of the company up to that date, and likewise laid before it a carefully prepared plan for opening up the quarry, together with a corresponding estimate of expenditure submitted to them by Mr. Fuller, your engineer. Therein you were informed that, at the depth of 12 yards, solid slate rock had been reached, by means of two extra trial shafts, and its existence at that depth practically demonstrated. You were also informed that at the expiration of about six months from thence, subject to the expenditure and mode of working then proposed, your engineer hoped to be in a position to commence working the solid rock. Subsequently, however, and after mature consideration, the directors felt it to be their duty to direct a continuation of the trials already made, before incurring the additional outlay involved in the advised concurrent removal of the surface debris, increased, as it appeared likely to be, by the threatening general advance of wages in the district. Your board being satisfied that the quality of the slate cannot be surpassed, have during the progress of the above-mentioned trials, combined with the evidence afforded by the adjoining quarries, both above and below Taldwrs, on the same slate band, arrived at the conclusion that, as regards quantity also, the portion of the vein underlying your grant will, if vigorously opened up, fully confirm the favourable indications it already presents. From the engineer's report now appended, to which they invite special attention, the shareholders will clearly perceive how the works have progressed, and their present position; as also the absolute necessity for a further expenditure, with the view of expediting, as far as practicable, the tedious and expensive operations always more or less incidental to such enterprises, which, when completed, your directors feel assured will result in establishing the value and capabilities of the quarry. Your directors also submit to you herewith a statement of the company's accounts, with the expenditure, made up to April 30 last. From this you will perceive the satisfactory manner in which the first call has been responded to, the balance in hand, and the amount of capital still unsubscribed for; and your directors beg to draw your attention to the latter item, in justification of the renewed call, which, in the absence of increased capital, and in order to carry on the works, they must soon necessarily make. Two of their body, Messrs. Banks and Moore, in accordance with the Articles of Association, will resign their seats at the general meeting, and offer themselves for re-election. The appointment of one or more auditors will also form part of the business to be transacted, the present offering themselves for re-election. In conclusion, taking into consideration the comparatively short period (only 15 months) during which you have been at actual work in developing your property, the increased value it has thereby acquired, and the probability that within another similar period it will be in full work, and yielding returns—your directors cannot but congratulate you on these facts, and anticipate at your hands a favourable judgment on the general results of their past labours.

The CHAIRMAN said, since the last general meeting the works had been prosecuted carefully and cautiously. At that time the directors were obliged to say that some disappointment had been experienced in not having found as good rock under the whole of the ground uncovered as had been found in the spot first opened; but, at the same time, he might now honestly say, and he spoke as a large shareholder, giving the result of an inspection of the quarry on Saturday last, that there was every possible reason to be very much pleased with its general appearance. Although he did not profess to be a slate engineer, yet he thought he might with some degree of confidence state that the present subscribed capital would be sufficient to bring the quarry into such a position as to begin to make returns of slate; but they would recollect there was a large number of shares yet to be disposed of, which, when taken up, would enable the engineer to open out a much more extensive scale of operations. At present the lift from the engine-house was going down, and in doing so exposed all the sides of the wall. Although they were at present working through a mass of twisted rock, which seemed to have been crushed up between two walls, and therefore unserviceable, still all the faces around were composed of slate rock. Therefore, according to all theories, as well as practical results gained elsewhere, there could be no doubt that as they went down the rock would become more consolidated, and produce a really serviceable slate. Every indication was highly satisfactory, both as regarded the joints and the character of the slate. They were on the vein of the very best slate that Wales produced, of which they had a most abundant proof in the quarries both above and below them, and there was no reason that their quarry should not prove as profitable as its productive neighbours. Two quarries below them, working upon the same vein, have yielded very large quantities of slate at three or four times the depth of Lower Taldwrs. For his own part, speaking as a shareholder and not as a director, he was perfectly satisfied with the outlay he had made, for he firmly believed he should have a very ample return, as he was convinced all who did not desert the ship. Their expenditure had been made as judiciously as possible, but the wages in the valley had risen, and threatened to be increased, in consequence of the scarcity of labour, which, of course, was against them, and had to a certain extent put them out of their calculations. It was for that reason the directors had not felt themselves justified in going to a greater expense in uncovering a larger surface of ground before being perfectly satisfied with the real character of the rock. He believed their engineer, supported by the opinions of the different managers of quarries in the valley, would satisfy the shareholders that there could be no doubt that Lower Taldwrs would prove a very valuable and permanent quarry. Having stated that he would be glad to furnish any information desired, he concluded by moving the reception and adoption of the report and accounts.

Sir JAMES DOMERAIN had much pleasure in seconding the motion. After the clear and satisfactory explanation from the Chairman, who had so recently visited the quarry, they had every reason to be very confident as to the results of their future operations. Among the Irish shareholders there had been some little anxiety, inasmuch as the prospects held out at the inauguration of the company had led them to suppose quicker returns would be made. But the cautious and careful manner in which their engineer conducted the operations, combined with the satisfactory details submitted by the Chairman, would, he believed, remove any apprehensions as to the ultimate success of the undertaking. Indeed, to use the words of the report, "nothing has transpired to diminish in any way their confidence to ultimate success."

The reports and accounts were then unanimously adopted.

Upon the proposition of Mr. ALEXANDER, seconded by Mr. CRADDOCK, the retiring directors, Messrs. James Banks and Ponsonby A. Moore, were re-elected.

The CHAIRMAN, upon his re-election as director of the company, begged to return his sincere thanks, and assured the shareholders that he had perfect confidence in the present, and would use his best exertions to bring it to a successful issue. He had shown his confidence by increasing the number of his shares to a very considerable extent.

Mr. J. BANKS expressed his thanks for this renewed mark of confidence in having re-elected him to a seat at the board. He would do everything in his power to promote the best interest of the undertaking, and no effort on his part would be spared to give entire satisfaction to those who had placed confidence in him.

Upon the proposition of Mr. BANKS, seconded by Mr. PATRICK, the retiring auditors,

Messrs. Cartier and Harper, public accountants, were re-appointed, and the fee of ten guineas voted for their services during the past year.

Mr. G. L. FULLER (the company's engineer), reiterated the opinion he had expressed in his report, for he believed it was only a matter of time and outlay to make the Lower Taldwrs a really productive quarry. The general opinion in the valley was that they could not do better than continue their present operations, and he did not think there was a difference of opinion as to their having a quarry near to where they were operating, although there might, perhaps, exist some difference of opinion as to the exact spot where the most valuable slate would be found.

Mr. PATRICK wished to know whether the work they had to perform was within the company's capital, and what expenditure it was estimated would be incurred to bring it into a productive state of working?

The CHAIRMAN replied, that the first question he had answered. The shaft at present going down could be sunk into really workable solid slate rock by the present capital.

Mr. FULLER said there was no doubt that the shafts were going down into good slate in both ends of the ground. He believed the present capital would be sufficient to work the slate—that is, to make it a good quarry, and every step after that would be taken with the utmost confidence.

Mr. PATRICK wished to know whether the whole of the present capital would be expended before slate were obtained?—Mr. FULLER said they might get some slate, but not any large quantities. But he believed after that expenditure had been made the property would be in a good position to enlarge their slate making to any extent.

The CHAIRMAN said he knew of several joint-stock quarries which had been at work for one or two years, and after having spent the whole of their capital, began to make very good profits. He thought that what had been done in their property was quite a fair proportion of success; while the work they had to do to bring them into a productive slate would not occupy them nearly so long as had been the case in other instances.

Mr. PATRICK begged to move a resolution to the effect that the directors were entitled to the thanks of the shareholders for the manner in which they had conducted the undertaking.

Mr. CLAYTON seconded the proposition, which was put and carried unanimously.

The CHAIRMAN acknowledged the vote, when the usual courtesies terminated the proceedings.

#### AFRICAN STEAM SHIP COMPANY.

An ordinary half-yearly meeting of proprietors was held at the offices of the company, Mincing-lane, on Wednesday.—Mr. F. D. HADOW in the chair.

Mr. D. CAMPBELL (the secretary) having read the advertisement convening the meeting, submitted the report of the directors, as follows:

In conformity with the provisions of the Deed of Settlement, your directors have now to submit to you their report of the company's affairs for the six months ending April 30 last, together with the balance-sheet and statement of accounts to that date, duly examined and signed by the company's auditors. After making the authorised reserve for depreciation, which amounts to 31921. 19s. 10d., defraying all expenses of navigating and maintaining the ships, insurance, and repairs, discharging the cost of the intercolonial service, and adjusting sundry other accounts, there remains a balance of 50977. 2s. 5d., to the credit of the revenue account; out of which your directors recommend the payment of a dividend of 7s. per share, free of income tax, for the half-year ending April 30 last, being at the rate of 7s. per share, free of income tax, for the half-year's capital. This payment will absorb 4816l., and leave 2811. 2s. 5d. to be carried over to next half-year's account. The mail service continues to be performed in a most efficient manner. The ships have kept the contract time with great punctuality, and are in a thorough state of repair. The new steamer, *Macgregor Laird*, is now on her first voyage; and from the satisfactory report of the commander, received from Madeira, your directors have reason to believe she will prove a most valuable addition to the company's fleet. Steamers having been required by Her Majesty's Government for the conveyance of troops and stores to Canada, the directors tendered the *Cleopatra*. She was accepted, and dispatched to Halifax. Her accounts for the service are not yet closed, but the result will be satisfactory. The retiring directors are Messrs. Patrick D. Hadow and Thomas Norton; these gentlemen being eligible, offer themselves for re-election.

The CHAIRMAN, having moved the adoption of the report and accounts, said that the report detailing the company's operations for the past six months was necessarily short, because the incidents that had taken place were very few; therefore, there was nothing to justify a more lengthened statement. There was cause for great congratulation, because, in the absence of complaint, it showed they were performing with satisfaction the most important part of their work—the postal service; and he thought the accounts showed that it was a good work in a commercial point of view, giving a satisfactory return to the shareholders. One of the most esteemed captains in the service of the Portuguese and Oriental Company, when things were going on well, used to write his report as follows:—"Everything is smooth and satisfactory." That same expression, he said, was applied to the condition of the African Steam Ship Company. After making the authorised reserve for depreciation, deducting the expenses of navigating and adjusting sundry other accounts, adding to the boiler fund, and writing off a considerable sum on the *Hoppe* account, there remained a balance of 50977. to the credit of revenue, and, therefore, available for the purpose of dividend. As regards the mail service, they had no complaint from the Post-office, and they had also great ground for being thankful that during the past six months they had no casualties whatever. With regard to their new ship, the *Macgregor Laird*, she was performing her duties most satisfactorily, and would prove a most successful addition to the company's fleet; her consumption of fuel was moderate. The *Cleopatra*, which had been chartered by the Government for the conveyance of troops and stores to Canada, had performed her service most efficiently, and had given great satisfaction to the passengers and officers, the captain expressing himself in very commendatory terms of her efficiency. He was glad to say that although the account was not yet settled, but would be shown in the next statement, it would prove satisfactory to the company.

The SECRETARY read several extracts of letters received from the commander of the *Macgregor Laird*, to the effect that everything worked exceedingly well. Her average speed had been about 13½ knots per hour, and her daily consumption of coal did not exceed 12 tons. The machinery worked very well; the temperature in the engine-room was very low, arising from the cylinders being so well case.

Mr. T. NORTON seconded the proposition adopting the report and accounts.

Mr. BALISTER, speaking from an investigation of the accounts, assured the proprietors that the company was in a very excellent position.

The motion was put and carried unanimously.

The retiring directors, Messrs. F. D. Hadow and T. Norton, were unanimously re-elected, and the auditors were re-appointed.

Upon the proposition of Mr. TREXFORD, seconded by Mr. TUXFORD, a vote of thanks was passed to the Chairman and directors for the efficient manner in which they continue to conduct the business of the company. Votes of thanks were also passed to the secretary and the officers and agents of the company.—The proceedings then terminated.

#### TRUTH'S ECHOES: OR SAYINGS AND DOINGS IN MINING.

The Mining Share Market has been rather active during the week, and a fair amount of new business transacted—i.e., independent of the "bullying" and "bearing" between the two accounts. The usual fortnightly settlement took place yesterday (Friday), and proved to be a very heavy account; the whole passed off with the customary accommodation. There was a scarcity of East Cardon, Ludcott, East Carn Brea, and North Trelawny shares, which probably will be made right in a day or two.

DEVON CONSOLS continue in request at buyers' prices, the drop in the standard inspiring sellers at lower rates, but shares are very scarce.—SOUTH FRANCES and SOUTH TOLZOS have been in demand.—WHEAL SETON and NEW WHEAL SETON are being enquired for at present prices; the latter has considerably advanced.—WEST BASSETS are in request at higher rates.—EAST BASSET and NORTH BASSET have changed hands, the latter at lower rates.—GRAMBELL and ST. AUBYN have been sought for, at minimum quotations.—TINCROFT and GREAT SOUTHERN TOLZOS have been in good request, the latter at improved rates.—EAST SETON, CAMBORNE VEN, and WEST STRAY PARK have been fairly dealt in during the week.—EAST CARN BREA has, as usual, fluctuated, and the transactions have been numerous and daily, but they left off firmer.—WHEAL GREENVILLES have receded, still they have been fairly dealt in.—EAST GREENVILLE'S have been more freely offered.—EAST TREFUSS have been enquired for, and prices advanced in consequence of a reported improvement in the mine.

NORTH TRELAWNY and NORTH DOWNS have been in good demand, attended with fluctuations.

EAST JAMES have changed hands at present quotations.—BOTALLACKS have been sought for, but found scarce.—PROVIDENCE and MARGARET have been transacted.

—ST. IVES CONSOLS freely enquired for.—GREAT FORTUNES are more freely offered.

—SITHNEY and CARMELEH have had a short run, but are now offered at lower rates.

—WHEAL GAYLLS have been in good request, and several time bargains effected.

—WHEAL PROSPERS (Brente) have shared in the transactions of the week.—EAST GRYLLS have also been dealt in.

UNITED have advanced, and several transactions taken place.—WHEAL UNY and SOUTH WHEAL UNION have been less active, but occasional business done.—CARN CAMBORNE and GREAT RETTALLACK are offered more freely, the latter at lower rates.—EAST ROSEWARNE, ROSEWARNE CONSOLS, and ROSEWARNE UNITED have been in good demand all the week, and many bargains effected; but the latter has since been more freely offered, and the quotation weaker.

EAST CARADON have fluctuated during the week, but left off firmer.—WHEAL PHOENIX continues firm at present quotations.

—LUDCOPTS have had a great rise, and in good demand at present prices.

—NORTH TRELAWNY and NORTH DOWNS have been in request at higher rates.

—WHEAL SETON and NEW WHEAL SETON have been in request at higher rates.

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**DEVON AND CORNWALL UNITED.**—T. Neill, June 10: We have communicated the rise in the back of the deep adit level to the winze sinking below the midway level; this has given good ventilation for pushing on the level and stopping the ground to advantage. At William and Mary we have also communicated the 10 to No. 2 winze, and shall commence driving east this afternoon; the lode is worth about 3 tons of ore per fathom. No change to notice in any other part of the mine.

**DEVON NEW COPPER.**—P. Hawke, June 11: With a view to complete the shaft to the 98, if possible, by the end of this month, nine men and three labourers are now engaged in sinking, and I am satisfied with the progress that is made. The other operations are proceeding satisfactorily.

**DOLCOATH.**—C. Thomas, W. Provis, J. Tonkin, J. Thomas, June 9: South Part of Main Lode: The engine-shaft is sunk 5 fms. below the 266. A lode, which is probably the south lode, has recently fallen into the shaft; it contains a little tin, but is not of much value; this lode has just been intersected at the 254, just under old sump-shaft, by a cross-cut from the north part; the lode is not yet cut through, but is producing tin—probably worth 127 per fm. for the width seen, 5 ft. Old sump-shaft, sunk 3 fms. below the 249, is worth 127 per fm. The 230, west of old sump, is worth 182 per fathom. Dunkin's garden shaft, under the 200, is worth 351 per fm. The 220, west of Dunkin's garden shaft, is worth 401 per fm. The 210, west of Dunkin's garden shaft, is worth 201 per fm. At the 210, east of new east, we have not yet intersected the north part. Harriet's shaft, below the 200, is yielding a little tin. The 200, west of Harriet's, contains a little tin, but we are at present driving north for the purpose of intersecting the main part of the lode. The 160, west of Wheal Killas, is unproductive. At the 190 north, towards Valley shaft, we have intersected a branch containing tin, and expect to reach the main lode shortly.—North Part of Main Lode: The 266, east of engine-shaft, is worth 501 per fm. The 266, west of engine-shaft, is worth 251 per fm. The 254, east of new east, is worth 141 per fm. The 242, east of new east, is worth 301 per fm. The 242, west of old sump, has reached the cross-course, and the men are now engaged in sinking a winze below the 230, on the cross-course, for ventilation, &c. The 230, east of new east, is worth 151 per fm.—North Entral Lode: The 20, west of cross-cut, north of Rule's shaft, is unproductive. We intend shortly to commence a winze under the adit, where the lode contains spots of ore, and presents a promising appearance. We would again repeat the statement made at the last account, that we only value the lode for 6 ft. in width; but we have generally found in stopping that it has been worth fully 50 per cent, more than the value given in our reports. The amount charged for the addition making to the stamps in the current cost to-day, is about 200!. We have now 452 men and boys underground, being an increase of 53 in the last twelve months. The price of tin for these two months is 11. 15s. 6d. per ton less than for the former two months, 6s. per ton less than it was six months since, and 15s. a ton less than for the year 1860.

**EAST BEAM.**—J. Webb, June 12: We have cut into the south lode 7 feet; it is of a beautiful character for tin, although this part is of low produce; we have put a horer hole 8 feet further, the last 5 feet was good work for tin crossing from the boring, and no south wall reached as yet, therefore we have proved the lode 15 feet wide, and letting out much water, which shows there is a continuation of a champion lode. We shall go on driving south until we reach the south wall, then commence to extend on its course, as that part is likely (from the character of the other lodes in the neighbourhood) to be the most productive part. So far as we have developed the mine, the prospects are very cheering indeed, having two immense wide lodes running through the seat full  $\frac{1}{4}$  of a mile, with a splendid situation, all being whale at surface, with the exception of the old streamers working a few feet deep in places.

**EAST RUDNICK AND MOUNT.**—Wm. H. Reynolds, June 10: The lode in the 17 west looks promising, and in a few fathoms we hope to intersect the lode met with in the cross-cut south, where it yields stones of lead. In the 17 south we have not yet cut the Rudnick Consols lode, but must be very near it.

**EAST CARN BREA.**—T. Gianville, J. Scholar, June 11: In the 50, east of the cross-cut, the lode will yield 3 tons of ore per fm.

In the 50, west of the cross-cut, the lode will yield 1 ton of ore per fm. The 40, east of the western shaft, is holed to the winze below the 40.

In the winze sinking below the 40, east of the cross-cut, the lode will yield 4 tons of ore per fm. In the winze sinking below the 26 the lode will produce 2 tons of ore per fathom.

In the 26 west the lode will yield 2 tons of ore per fm. In the 50 east the middle lode will yield 2 tons of ore per fm.

—T. Gianville, June 12: We have holed the new shaft to the rise above the 26. The mine throughout is looking splendid. The lode in the 50 west is improved, and will now produce 4 tons of ore per fm.

**EAST DEVON GREAT CONSOLS.**—T. Richards, June 11: I have now come from underground, and beg to inform you the lead lode is much the same as on Saturday last, producing good stones of lead ore.

**EAST GUNNIS LAKE AND SOUTH BEDFORD.**—J. Phillips, June 12: The lode in the 36 east is still worth 4 tons of ore per fm. No change to notice in any other part of the mine.

**EAST JANE.**—H. B. Vercoe, June 12: Western Lode: The lode in the adit has considerably improved in the last day or two; it is now about 4 feet wide, composed of flockan, carbonate of iron, quartz, and lead, and will produce of the latter full 15 cwt. per fm.; a branch has fallen into the lode from the western side, which has caused this improvement. The stopes in the back of this level will produce 3 cwt. of lead per fm. We hope to hole the new shaft to the adit in about a month from this time; when this is accomplished it will greatly facilitate the working of this part of the mine.—Middle Lode: The lode in the adit end is about 2 ft. wide, composed of flockan, quartz, gossan, and munde; this end is now driven 30 fms. We may soon expect a change for the better at this point, as the western lode began to produce lead in parallel ground to this, and this lode has presented much better appearances than the western one at the same depth.—Engine Lode: The shaftmen are engaged in sending down pitwork, &c., and we hope to have all things ready to put the engine to work about the middle of next week; the water is down about 3 fms. below the adit. We have sampled this day (computed) 25 tons of lead.

**EAST ROSEWARNE.**—John James, June 7: There has been nothing done in sinking Halliett's shaft during the week. We have been putting down the rods and shall resume sinking about the middle of next week; this shaft is in a good lode, with every prospect of opening profitable ore ground. In the 55 east the lode is 18 in. wide, worth 161 per fm. The stopes over this level is worth 14 per fm. In the 55 west the lode is 9 in. wide, producing stones of ore; we have met with a branch approaching the lode from the north, which I think will improve it. In the 43 winze the lode is 1 ft. wide, a very throughout, but not rich; I think this is but a temporary decline, as there is a good lode both east and west of it. In consequence of the ground being rather hard and wet, we have suspended this winze. When the 85 reaches this point we can rise against it to much better advantage. In the stopes west of said winze the lode is 14 in. wide, worth 221 per fm. In the stopes east of ditto the lode is 1 ft. wide, worth 12 per fm. The ground in the 43 cross-cut continues hard for driving. We consider our prospects, particularly at the bottom of the mine, to be very cheering.

**EAST TREFUSIS.**—T. Richards, June 7: The 22 east in driven west upon Smith's lode nearly 100 fms.; the lode contains a good gossan, and a little copper ore.

**EAST WHEAL GREENLINE.**—G. R. Odgers, Wm. Bennetts, June 11: The lode in the engine-shaft, sinking below the 45, is 18 in. wide, and looking better for copper; we think this lode will improve.

The lode in the 45 east is 18 in. wide, yielding ore and tin; as we get away from the cross-course, we expect an improved lode. The lode in the 45 west is from 4 to 5 ft. wide, and producing good work for tin, worth from 104. to 151. per fathom—a kindly lode. The rise above the 35 east is worth 61. per fm.

The stopes above the 35 east is worth 61. per fm. The lode in the winze sinking below the 35 west is worth 101. per fm.

We are getting on very well with the stamps.

**EAST WHERAL RUSSEL.**—J. Richards, June 11: Homersham's Shaft: The 120 is suspended, and the men are put to drive north for intersection of the north or most productive part of the lode, as proved in levels above. In a new, or Viger's, rise in the back of the 120 east the lode is 1  $\frac{1}{2}$  ft. wide, composed of quartz, prian, flockan, and good stones of ore occasionally.

In the cross-cut south, at the 110 east, the ground is become much more easy for progress, and from the appearance of the ground, as well as the influx of water, the south part of the lode will probably soon be met with. In Fawin's cross-cut, at the 110, the drivage is still being continued north through the lode, which consists of capon, iron gossan, and a small proportion of malleable copper. In the 100 east the lode is from 2 to 3 ft. wide, composed of capon, quartz, prian, and good stones of ore.

In the rise in the back of the 88 the lode is small and unproductive.

In the back of the 68 the lode is 6 ft. wide, composed of capon, quartz, prian, and occasional good stones of ore.

In the 88, west of Hitchin's shaft, the lode is 2 ft. wide, composed of capon, quartz, prian, flockan, and a little grey and black ore.

**FIRANK MILLS.**—J. P. Nicholls, J. Cornish, June 11: In the cross-cut west from the 84 north we have intersected a branch 6 inches wide, composed of white iron, with good stones of ore in it. The west branch, in the 73 north, is looking better than last reported, and is now yielding some good saving work. The 60 north, on the same branch, is still looking extremely promising, yielding lead ore, but not, however, quite so much as last reported. In the cross-cut driving east from the 45 north we have intersected a branch 8 in. wide, consisting principally of barytes, with a little lead ore. The 45, south from air shaft, is still productive, and will yield 5 cwt. of lead ore per fm. We are putting up a rise against this level from some old workings in the back of the 60, for ventilation, &c.; here the lode is also productive to the amount of 7 or 8 cwt. of lead per fm. The stopes in the back of the 84 are not looking quite so well, but those in the back of the 72 and 60 are without any particular change since last report. The tribute department, also, is without much change.

**GAWTON.**—G. Rowe, June 7: There is no change in the appearance of the lode in either point of operation since last reported on. During the past few days the men have been principally engaged in securing a run which took place between the 50 and 30, and stopped our ventilation, but it is now completely and in good condition. We now propose to thoroughly cut through the lode in the 36 west, in order to ascertain its entire width and value. I will furnish you with the setting report next week.

—George Rowe, June 9: Saturday last being our monthly setting-day, the following bargains were let:—A cross-cut to drive south at the 36 west, by four men, at 51 per fm.; stent 1 fm., or cut through the lode. A piece of lode to take down as per bar-gain, by two men, at 31. 10s. per fm. The stopes in back of the same level to carry all the lode not taken. All the wheeling and trammeling in the mine for one month, by two men, at 51. 12s. The all the filling and landing for one month, at 71. 5s. A pitch in the 35 by two men, at 13s. 4d. per perch.

**GREAT BRIGAN.**—T. Trelease, G. Oates, June 7: We completed our plunger-lift yesterday, and put the engine to work about 12 o'clock; it works very well indeed, and hope to get the water in fork again by Monday next. We shall put our dray luff to work in order to go on forking the mine to a deeper level. There is nothing particularly new to report on this week, as most of the underground men have been engaged to capstan. The water is now drained at trial and whm-shafts; we intend to commence operations here on Monday. We have let the masonry for the new steam-whm and all other buildings required this day at 1s. 8d. per perch.

**GREAT NORTH DOLCOATH.**—T. Trelease, G. Oates, June 7: The shaftmen have put in bearers for the plunger-lift, and are now engaged cutting ground for the cistern-plat, which we hope to complete next week. The coming water is about five strokes per minute. Nothing else new since our last report.

**GREAT ONSLOW CONSOLS.**—G. Rickard, June 10: In the 122 east the ground is a little stiffer, but is, nevertheless, favourable for opening. There is nothing fresh to report relative to the lode. There is no change to notice in the 122 west.

**GREAT RETALLACK.**—W. H. Reynolds, June 10: We have re-set the shaft to be sunk by eight men, at 121. per fm.; the part of the lode in the shaft is composed of spar, biplane, lead, and copper, but not enough of either to value at present. The 53 east and west is set at 30s. per fm.; the lode in the eastern end is promising, and in the western end we are still driving by the side of the lode.

**GREAT SOUTH TOLGS.**—J. Daw, June 11: The sumptmen are still employed in cutting the cistern-plat, and in preparing to lay the new pitwork; it will take us about a week or ten days longer to complete, and then we shall commence sinking again. The lode in the 140 east is 1  $\frac{1}{2}$  ft. wide, unproductive. In the 100 west the lode is much the same as last reported, producing 3 tons of copper ore per fm. On Saturday last we sampted 113 tons 14 cwt. 2 qrs. of tinstaff, which is of good quality; and we have about 70 or 80 tons more surface to sample.

**GREAT WHEAL RADDEEN.**—J. Hampton, J. Jenkins, June 11: We got to the bottom of the shaft on the tin lode to-day, but in one place only; it is about 7 fms. below the surface. My next week we shall be able to clear up the shaft and workings, and bring to surface some of the lode, and sample it to test its value; we may state, however, that the lode is very compact, about 3 ft. big, and it has a very promising appearance for tin.

consisting of peach, &c., the usual compound in this district for productive tin lodes; the lode is taken away each side of the shaft for tin, and we have a good opinion of it for working. At Hill Brothers shaft the cross-cut is gone through a small branch, but, contrary to the rest, it underlies south the way we expect to find the lode. The water still increases a little.

**GREAT WHEAL BUSY.**—J. Delbridge, R. Giles, T. Richards, June 7: In the engine-shaft, sinking below the 120, the lode is from 3 to 2  $\frac{1}{2}$  ft. wide, yielding good stones of tin, with a kindly appearance. In the 120 west there is no lode to value. In the 120, east of Oxford's, the lode is small. Oxford's shaft, sinking below the 120, no lode to value. In the 110, east of ditto, the lode is 5 ft. wide, yielding about 4 tons of ore, with 15 tons of tinstaff of low quality. In the 100, east of ditto, the lode is from 7 to 10 feet wide, yielding 8 tons of ore, with tinstaff. Wasley's winze, below the 100, is worth for tin and copper from 201. to 251. per fm. In Coleman's winze, below the 90, the lode is 5 ft. wide, worth for tin and copper 101. per fm. At Mathew's shaft the lode is disordered by the silvans, yielding stones of ore, with low price tinstaff. In the 90, east of ditto, the lode is from 5 to 6 or 7 ft. wide, unproductive. In Mathew's winze the lode is from 3 to 4 ft. wide, but not to value. In the 100 cross-cut, west of Fielding's, we have cut a branch or lode; we purpose driving west from this cross-cut to prove its value. In the 80, west of Pluniger's, we are rising against King's shaft; the lode is 5 ft. wide, but not to value. The 70, cross-cut, north of King's, there is no change to notice. In the 50, west of Black Dog, the lode is very large, no spots of ore, not to value.—Boscawen's: We are drained complete to the 60 lift, and are now progressing to drop to the 70 with a 15 ft.-in-lift, which will be in readiness to drop in ten days or thereabouts. We are also pushing on all other works for this purpose. We are sinking Kittee's shaft below the 50, also rising above the 60 to communicate with all speed. We are cutting down and securing Hunter's shaft for flat-rods with all dispatch. In the 30 cross-cut south the ground is favourable. Other works are progressing satisfactorily.

**GREAT WHEAL MARTHA.**—R. Rickard, June 11: Saturday last being our general setting, the following pitches and bargains were set:—Tribute: Ten pitchers, by 36 men, at an average tribute of 9s. in 12. —Tut-work: The 52 east to cross-cut south through the lode, by six men, at 101. per fm. The 52 west, by the side of the lode, by four men, at 51. 5s. per fm., stent 4 fms. The 40 west to cross-cut through the lode, by two men, at 51. per fm. A winze to sink below the 40 east, by six men, stented the month, at 61. per fm. All the trammeling from the 52, 40, and 20 fm. levels, by three men, at 101. 10s. per month. All the filling and landing at Thomas's and engine-shafts, by six men, at 181. 10s. per month. We have cut into the lode at the 52 east about 10 ft., and not yet through it; from the last 3 ft. driving fine stones of ore have been broken. The lode in the present end is composed of spar, mundic, and copper ore—a very kindly appearance.

The lode in the winze sinking below the 20 is producing occasionally stones of copper ore, with a quantity of mundic; this lode has improved during the past week, with indications of a still further improvement. There is no alteration in the tribute department since last week. I hope to get the whim-engine connected with the engine-shaft by the middle part of next week, all being well. I have forwarded samples by this post of the last parcels of the mine.

**HAWKMOOR.**—J. Richards, June 10: The lode in the 50 west is about 2 ft. wide, composed of quartz, capel, mundic, and good stones of ore occasionally. The lode in the 30 west is 9 in. wide, composed of quartz and capel principally. The stopes in back of the 25 east are for a time suspended, and the men put to stop the back of the 30, west of Rowe's rise, where the lode is worth 1  $\frac{1}{2}$  ton of ore per fm.—West Hawkmoor: In the adit level, driving west, the No. 3 lode is small.

**HINGSTON DOWN CONSOLS.**—T. Richards, June 11: There is nothing new to advise you of this week. The 110 west continues to be worth about 101. per fm., and promising improvement.

**HOLMBUSH.**—J. Richards, June 10: In the 175, east of shaft, the ground is better for progress as we are driving towards the slide, and also more mineralised than hitherto; from the appearance we expect a change shortly for the better. The lode in the 160, west of shaft, is yielding good stones of copper ore. The winze sinking below the 20 is producing occasionally stones of copper ore, with a quantity of mundic; this lode has improved during the past week, with indications of a still further improvement. There is no alteration in the tribute department since last week. Friday next being setting-day, we will send more particulars. We have cut into the mine dressed and undressed above 25 tons of lead and 300 tons of mundic.

**LADY BERTHA.**—J. Metherell, June 10: The lode in the 53 east has improved; it is full 8 ft. wide, composed of pencil, mundic, and ore, worth of the latter 1 ton per fm., and the end very wet; this we consider very promising for a further improvement; in the same level west we have cut through the lode, which is 1  $\frac{1}{2}$  ft. wide, principally of hard quartz, mundic, and some stones of ore. In the 41 east the lode is small, but the end is becoming more wet; in this end we hope soon to see a change. In the 30 east the lode is very wide, full 5 ft. carrying a leader of mundic 3 ft.; the other portion of the lode is composed of quartz, pencil, and ore, worth of the latter 1 ton per fm.; this end is very promising. The stopes in the bottom of this level are worth 3 tons of ore, or 91. per fathom. The pitches throughout the mine continue much as usual, except the pitch in back of the 10, which has improved, now worth full 201. per fm.

**LAWBRIDGE.**—J. Richards, June 11: The eastern engine-shaft is sunk about 19 fathoms below surface; cased, divided, and ladder-road to bottom. The whim is erected, and goes on well. We have nothing new in the mine since I wrote you on Tuesday last, except in the 30 east, where we have taken down a piece of the lode further north, which is producing good work, but cannot speak of its value, as it is not yet cut through.

**LYLWERNOG.**—M. Barber, June 12: The 40-ft. wheel is doing its best work, and is considerably improved.

**MARSH.**—T. Gianville, June 11: The 50 east of the cross-cut is 10 ft. wide, composed of spar, mundic, and ore, worth of the latter 1 ton per fm., and the end very wet.

**MARSH.**—T. Gianville, June 11: The 50 west of the cross-cut is 10 ft. wide, composed of spar, mundic, and ore, worth of the latter 1 ton per fm., and the end very wet.

**MARSH.**—T. Gianville, June 11: The



JUNE 14, 1862.

\* With the Journal of this week we publish a SUPPLEMENTAL SHEET, which contains—the Australian Mining News—Advertisements of Machinery and Apparatus employed in Mining—the Normal Structure of Rocks, by Mr. Evan Hopkins—Capt. Charles Thomas and others on the Sanitary Condition of Miners—Plan and Section of Old Wheal Neptune, and other valuable information.

\* With the Journal of May 17 we gave a SUPPLEMENTAL SHEET, which contains—Mr. Phillips's paper "On Gold Mining, and the Gold Discoveries made since 1851," as read at the Society of Arts, with the Discussion thereon; the Beariz Tin Mining District; the Mining News from Australasia; Copper Mining on Lake Superior; the paper "On the Relative Merits of Skips and Man-Engines for Raising and Lowering Labourers in Mines," read at the Miners' Association of Cornwall and Devon, by Mr. Josiah Thomas, of Camborne; the Discovery of London Fires; Colliery Explosions; New Steam-engine and Boiler; a New Steam Travelling Crane, &c.

## The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, June 13, 1862.

| COPPER.                         | £ s. d.         | BRASS.                         | Per lb.             |
|---------------------------------|-----------------|--------------------------------|---------------------|
| Best selected...p. ton          | 95 0 0 —        | Sheets .....                   | 10d.—11d.           |
| Tough cake.....                 | 93 0 0 —        | Wire .....                     | 9½d.—9¾d.           |
| Title .....                     | 93 0 0 —        | Tubes .....                    | 11d.—12d.           |
| Burra Burra .....               | 94 0 0 —        | FOREIGN STEEL.                 | Per Ton.            |
| Copalo .....                    | 94 0 0 —        | Swedish, in kegs (rolled) 14   | 10 0 —              |
| Copper wire .....               | p. lb. 0 1 0 —  | " (hammered). 15               | 10 0—10 0 0         |
| ditto tubes .....               | 0 1 0—1 0 1/2   | Ditto, in fagots .....         | 17 10 0—18 0 0      |
| Sheathing & bolts .....         | 0 10 1/2 —      | English, Spring .....          | 18 0—23 0 0         |
| Bottoms .....                   | 0 0 11—0 11 1/2 | Bessemer's, Engineers Tool 44  | 0 0 —               |
| Old (Exchange) .....            | 0 0 9—          | Spindle .....                  | 30 0 0 —            |
| IRON.                           | Per Ton.        | QUICKSILVER .....              | 7 0 0 p. bottle     |
| Bars, Welsh, in London .....    | 6 0 0 —         | In sheets .....                | 23 10 0 24 0 0      |
| Ditto, to arrive .....          | 5 17 6—6 0 0    | tin.                           |                     |
| Nail rods .....                 | 7 0 0 —         | English, blocks .....          | 114 0 0 —           |
| Bars, ditto, in London .....    | 7 5 0—8 0 0     | Ditto, Bars (in barrels) ..... | 115 0 0 —           |
| Hoops .....                     | 8 5 0—8 10 0    | Ditto, Refined .....           | 119 0 0 —           |
| Sheets, single .....            | 3 0 0—9 10 0    | Banca .....                    | 123 0 0 (nom.)      |
| Pig, No. 1, in Wales .....      | 3 0 0—4 0 0     | Straits .....                  | 114 10 0 —          |
| Redhot metal, ditto .....       | 4 0 0—5 0 0     | TIN-PLATES.*                   |                     |
| Ditto, f.o.b., in Tens .....    | 5 2 0 —         | IC Charcoal, 1st qua. p. bx. 1 | 7 6—1 8 6           |
| Ditto, f.o.b., in Tens .....    | 5 2 0 —         | IC Ditto 1st quality .....     | 1 13 6—1 14 6       |
| Staffordshire Forge Figs. ..... | 8 10 0—8 12 6   | IC Ditto 2d quality .....      | 1 4 0—1 6 0         |
| Welsh Forge Figs. .....         | —               | IC Ditto 2d quality .....      | 1 10 0—1 12 6       |
| LEAD.                           |                 | IC Coke .....                  | 1 2 0—1 3 0         |
| English Pig .....               | 21 0 0—31 10 0  | IC Ditto .....                 | 1 8 0—1 9 0         |
| Ditto sheet .....               | 21 10 0—32 0 0  | Canada plates .....            | p. ton 12 10 0—13 0 |
| Ditto red lead .....            | 22 0 0 —        | In London .....                | 6 12 6—6 15 0       |
| Ditto white .....               | 28 10 0—30 0 0  | Yellow Metal Sheathing .....   | p. lb. 8½d.—9d.     |
| Ditto patent shot .....         | 23 0 0 —        | Indian Charcoal Figs. .....    | —                   |
| Spanish .....                   | 20 0 0 —        | In London .....                | —                   |

\* At the works, 1s. to 1s. 6d. per box less.

**REMARKS.**—The past week has been marked by no change of importance in the Metal Market. There is, perhaps, rather less doing, and prices, for the most part, exhibit a somewhat drooping tendency. The advices from India and Australia, by the Marseilles mail, on the 12th inst., are still very unsatisfactory. China reports are rather more favourable. Orders for America are now coming over more freely, but the fact of suppliers not having sufficient confidence to execute them, unless accompanied by the cash, rather impedes that business just now; nevertheless, shipments thither are gradually increasing, but it will in all probability be years before our trade with America regains its former dimensions, and it is even doubtful if it ever will do so, as commercial relations once suspended are exceedingly difficult of renewal. The demand for home consumption is quiet, but tolerably steady.

**COPPER.**—English descriptions remain without alteration. Orders for manufactured are still taken at 10d.; cake, tile, and ingot at about 92s. There is only a limited enquiry at the present moment, but these prices are well maintained. Foreign is slow of sale—Burra Burra declined to 94s.; Kapunda, 93s. to 94s.; Chili, 84s.; Spanish, 88s.

**YELLOW METAL.**—Braziers sheets can be purchased as low as 8d. and 8d. per lb. Sheathing, owing to the combination of makers, is generally held for 8d., but sales have taken place under this figure.

**IRON.**—Railway bars in request at 5l. 5s. in Wales; makers' price 5l. 7s. 6d. to 5l. 10s. In merchant bars there is a better demand, chiefly for shipment to India; manufacturers are mostly well employed, and quotations are very firm at 5l. 5s. at the works, and 5l. 17s. 6d. to 6l. f.o.b. in London. Staffordshire makers of best quality continue in ordinary demand; current quotations are now closely adhered to. Swedish bars will not realise above 10s. 10s. for ordinary, and 10s. 15s. to 11s. for fine specifications. Stocks held here are not excessive, having been considerably reduced of late by large shipments to American ports and to Bombay. Scotch pigs during the week declined to 52s. 9d. mixed numbers, but are now quoted a trifle higher; market closes 52s. 9d. to 53s. mixed numbers.

**SPelter.**—Quotations for this metal must now be reduced to 17s. 10s. on the spot for cash, business having been transacted at this price in the week; buyers, however, are difficult to find even at this rate. There really seems to be hardly any vitality remaining in the market. This time last year a large business was doing, the price having declined from 18s. 5s., at which it ruled in May, 1861, to about 16s., and buyers hold back in expectation of some such rapid decline.

ZINC quiet at 23s. 10s. to 24s.

**LEAD.**—English pig is in good demand, and sellers now ask an advance of 5s. to 10s. per ton upon last week's quotations for ordinary soft quality—viz., 21s. and 21s. 10s. for WB. Sheets and shot are very little enquired for, and quotations remain without alteration. Spanish pig, 20s.

**TIN.**—English descriptions are only in very limited request, and sellers unable to obtain full rates. The market for foreign is exceedingly quiet. Fine Straits, 114s.; Banca nothing doing. Buyers not being inclined to operate at present rates, but preferring to await the result of the annual Dutch tin sale, which is held in Rotterdam on the 25th inst., when 142,000 slabs will be offered for sale, with the addition of a further quantity of 20,000 slabs if they arrive in time.

**TIN-PLATES.**—An improvement has been manifested in the demand for this article, and makers now require enhanced rates, first quality IC being quoted 22s. to 23s.

**STEEL.**—Swedish maintains its former position; the market is, however, abundantly supplied for some time to come.

**COPPER SALE IN HOLLAND.**—Under date June 11, Mr. L. Th. van Houten, of Rotterdam, writes that the Dutch Trading Company has fixed their next public sale of copper to take place on July 9, when 500 tons of ingot copper, from old Indian copper coin, will be offered in lots of 5 tons each. Samples may be had at the average price of the sale. No other copper will be brought in the market by the Dutch Trading Company during the ensuing three months, and the quantity which will then be offered, either in public sale or by private tender, is guaranteed not to exceed 500 tons. Banca Tin very flat at 70s., at which there are no buyers.

**NEW YORK, MAY 26.**—Business has continued unsettled, with an advance of 2½ per cent. in foreign exchanges and gold, the latter being quoted 4 per cent. premium, and London 114s. per cent. The Tariff and Tax Bills remain in the same position as in April; they have not yet been acted upon by Congress, and many articles of merchandise are seriously affected by the delay.

**TIN.**—There has been a moderate demand for consumption, but prices have declined. The sales of the last fortnight are 1200 slabs Straits at 28s., and 800 slabs Banca at 29s.; but large parcels could not to-day be sold at these rates. English is nominally 27s. c.; it is not at any time very saleable, and there is at present too much of it in the market. The importations amount to 1800 slabs Banca, 2100 Straits, and 5000 ingots English. From the East Indies 7800 slabs are on the way. We estimate to-day's stocks at 8500 slabs Banca and 23,000 slabs Straits. Total here and in Boston, 31,500 slabs, and 180 tons English. We find the stock of Straits somewhat smaller than our former estimates. The consumption appears to be increasing. It is known that a Tariff Bill will be reported by the Committee of Ways and Means, and, if any change is made at all, it is thought that a duty will be put on the free list. Under this impression, holders of tin for the greater part withhold their stocks.

**SWEDISH.**—Tin is dull, and no wholesale transactions have taken place. We quote Silesian and Leigh 8½ c., cash. The importation of foreign during the month has been 22s. tons,

**COPPER.**—Copper has again declined. We quote Lake at 30½ c. to 21 c., and at these prices nearly a million of pounds, the remainder of the old stocks in the hands of the companies, and part of the new arrivals now beginning to come in from the West, have been disposed of during the last two weeks. The present rates attract a good deal of attention, but unless consumers will buy sufficient of the heavy receipts, which will come on the mar-

ket in June, to relieve the companies, and enable them to carry a larger stock, it seems likely that prices must recede further. For export they are still too high, and it is doubtful whether we shall have much to spare for shipment. Whatever exports may take place will be early in the season. The great decline in prices since January has not been caused so much by too large a stock as by some of the more important dealers operating one against the other, and playing at different times at cross purposes, either for a rise or fall. This so completely unsettled the market that, with two exceptions, no transactions of consequence took place for four months past, and prices declined far below the cost of importation from Europe and Chili, and the cost of making ingot copper from ore. The whole trade bought only from hand to mouth; the arrivals from Europe partly provided for their wants, and at the end of April the stock was as large as in the beginning of February. But during the present month the deliveries to manufacturers and Government have been quite heavy, and we close the season with a stock of only 1½ millions of pounds of Lake, all in second hands. The Baltimore and Bergen Port Companies do not work to the full capacity, and have scarcely sold any copper for three months, as their product costs them 2 to 3 cents more than present quotations. Baltimore is quoted at 21 c. to 21½ c., from second hands. The future course of the market will in a great measure depend upon the prices at which these smelters will sell. Of Chili pig there is no available stock to speak of.

**LEAD.**—With arrivals of 3200 tons, and sellers from shipboard, the price of foreign remained stationary at 6½ c. to 6 10—100 c., for ordinary German, and 6½ c. for Spanish and English, but considerable sales were made on the spot and to arrive. On the 23d inst. the War Department advertised for proposals for 5000 tons to be delivered as soon as possible, and, although it was well known before that the Government required large quantities of lead, it created immediately a lively demand for all kinds, with sales of 1200 tons at from 6½ c. to 6½ c. for common German and Spanish, and 6½ c. to 6½ c. for the finer English and Stolberg. The Department advertised for American, English, and Stolberg only, and 2000 tons to be delivered in the West. This quantity, we suppose, will be furnished from Illinois and Missouri, but it will make the supply of Western lead, which usually come east, the more limited, as the mines are said to produce this year much less than formerly. We have no stock of domestic lead. We estimate the sales of the month at 3700 tons, part to arrive, the stocks of to-day at 3000 tons, mostly common brands, the deliveries for the first five months at 10,200 tons, and the quantity on the way, and being shipped at latest dates, at 4000 tons.—WINTERHOFF AND CO.

The settlement of the fortnightly account in the MINING MARKET has again been very heavy; but, nevertheless, a fair average amount of business has been transacted during the week in shares generally, though, from the fall in copper referred to in our last, several shares have declined in price, and have been more freely offered for sale. The shares most in request have been, North Downs, Grenville, Wheal Unity, South Frances, Carn Camborne, North Treskerby, South Caradon, Central Minera, Gornamena, Wheal Pollard, East Wheal Russell, Wheal Ludicot, East Carn Brea, Rosewarne United, East Rosewarne, Redmoor, Tamar Consols, and a few others. Those most affected by the fall in copper have been Devon Consols and Marke Valley. The favourites for some time, East Caradon and East Carn Brea, have both been less dealt in, the former flat from a temporary falling off in the levels, and the latter from absence of business. East Caradon shares have been flat, and leave of 4½ to 44 to 44 to 44; the latest report values the 50 east at 20½ per fm., the 60 east 20½ per fm.; and the agent adds, the 60 is just under the place where the 50 became reduced in value twelve months ago, but not so far east as where they had the richest lode in that level, consequently an improvement is looked for in the 60 in a fathom or two further driving. The new lode in the 60 west is worth 12½ per fm. Devon Great Consols have declined to 430, 440. South Frances not quite so firm, at 105 to 110. South Caradon, 340 to 350; the profit on two months was 2414. 2s. 9d., and a dividend and bonus of 5½ per share declared, leaving 2824. 7s. 7d. in hand. At the meeting a new lease for 21 years was presented to the shareholders, and their best thanks offered to Mr. and Mrs. Norris, the lords, for their generous mark of confidence in the company. And on behalf of "One and All," we would add, that when we consider the conduct of the Duchy of Cornwall towards the Phoenix adventurers, and also that 20,000£. was demanded of the Devon Consols, and paid by that company, for a new lease, this generous act on the part of the lords of South Caradon—although, considering the risks of mining, no more than shareholders have a right to expect—demands the thanks of the whole mining community. East Carn Brea shares declined to 17, 17½, and leave of 18½ to 19; the latest report, under date the 12th, states the new shaft had been holed to the rise above the 26; the mine throughout looking splendid, and the lode in the 50 west improved to 4 tons per fm.; the 50 east, 3 tons; the 40 east, 3 tons; the winze below the 40 worth 4 tons. Great South Tolgus, notwithstanding a large business, have declined to 4½, 5; the 100 west contained worth 3 tons of copper ore per fm., and sampled 113 tons of tinstuff.

Wheal Ludicot shares have again advanced, after a very large business, and leave off 15½ to 15½; on the 7th the mine sold 20 tons of silver-lead, at 317. 15s. per ton, and sampled on the 9th 80 tons of good lead; next week will be sold about 3 tons of rich silver ore, estimated at 300£. per ton, and 4 tons estimated at 100£. per ton. The mine has further improved in the north part for lead, and in daily expectation of drawing the water from the 84, where the silver is expected to be found. North Trelawny shares still fluctuating, and leave off 28s. to 30s. Wheal Grenville shares have been largely dealt in, and leave off 6½ to 7½; the 110 end west is worth 30s. per fm. for copper; the 100 west is worth 1½ to 2½ tons of copper ore per fm.; the 90 west is worth 2 tons per fm.; the rise is worth 2 tons per fm.; the new lode at the 80 is worth 30s. per fm. for tin. A valuation by the agents, on behalf of the committee, states they are discovering at the rate of 200 tons of copper ore per month, and should this continue, of which there is every prospect, good profits can be realised, as well as a great addition made to the reserves. North Bassett, 3½ to 4; the north part of the lode in Gracis's shaft is 2 ft. wide, worth 1½ ton per fm. Marke Valley shares receded from 9, 9½, to 8½, 8½, chiefly owing to the fall in the standard. Wheal Mary Ann, 14 to 15; at the meeting the accounts showed a profit of 387. 12s. 10d. on the quarter, and a dividend of 10s. per share (512£.) was declared, leaving 1781. 11s. in hand; the stoves and pitches in the mine are producing about as much as usual. Camborne Vean, 2 to 2½; Carn Camborne, 13s. to 15s.; Clifford Amalgamated, 27 to 28; Cook's Kitchen, 29 to 31; East Bassett, 40 to 41. East Rosewarne shares have fluctuated, but leave off 2½ to 3. East Russell, 3 to 3½; Grambler and St. Aubyn, 17 to 19. Wheal Unity shares have become in request, and advanced to 16s., 18s.; there is now a fine course of ore below the 85, in the flat-rod shaft, with indications of further discoveries, and the Rosewarne Consols lode has also been discovered in the sett. Great Wheal Vor, 5½ to 6½; Great Wheal Fortune, 25 to 26. Herodsfoot shares declined to 37, 39. New Seton, 105 to 115; New Treleigh, 17s. 6d. to 22s. 6d.; North Crofty, 2½ to 2½. North Downs shares have been flat, but leave off 4½ to 4½ firmer, and are likely to go higher, as the mine is looking well, with fine prospects. Sithney Carnmen shares not quite so firm, at 3 to 3½. North Roscar, 24 to 25. North Treskerby shares firmer at 34 to 35; Providence, 41 to 42. Redmoor shares in good demand at 6s. to 7s. Rosewall Hill and Ransom United, 3½ to 3½; we understand the mine is looking well, and will make a profit of nearly 1000£. on the quarter. The dividend shortly will be either 2s. 6d. or 3s. per share. Rosewarne United shares advanced to 23, 25, but leave off 20 to 22½. South Caradon Wheal Hooper, 19s. to 21s.; South Carn Brea, 3½ to 3½; South Tolgus, 46 to 48; Strat Park, 33 to 34; Tamar Consols, 22s. to 24s.; Tincroft, 11½ to 11½; Wendron Consols, 11 to 12; West Bassett, 12 to 13; West Caradon shares flat at 32 to 34; West Seton, 255 to 260; West Strat Park, 3½ to 3½, and enquired for. West Tolgus, 34 to 36; Wheat Grylls, 32½ to 35; Wheal Harriet shares advanced to 30s., 32s. 6d.; Wheal Margaret, 43 to 44; Wheal Seton, 125 to 130; Wheal Trelawny, 13½ to 14½. Wheal Unity shares datter at 8½ to 9. East Grenville shares have also been flatter at 45s. to 50s., but the mine has improved in the shaft. Cargoll, 10 to 11; at the meeting the accounts showed—Lead sold in the quarter, less dues, 3271. 16s. 9d., and a balance in hand of 557. 0s. 3d., after charging 650£. on account of new engine and pitwork. The mine is looking well, and on the completion of the engine, will probably commence dividends. Central Minera, 1½ to 2½, and more in demand. Sortridge Consols, 10s. to 11s., and more enquired for; at the meeting the accounts showed a profit on six months of 219£., and a balance in favour of the mine of 440£. Treloweth shares have been in demand at 25s. to 30s.; at the meeting the accounts showed 10492. 17s. 6d. against the company, and a call of 4s. per share was made. The report is more cheering, and the agent expresses his confidence that the 134 end west will lead to good results. Wheal Kitty (Lelant), 10½ to 11½.

Charlotte United, 20s. to 25s., call paid; at the meeting, on Tuesday, a call of 5s. 9d. was made, and Mr. Hosking (the purser of Prosper United) was appointed purser and manager; the books, papers, and leases, to be handed over to him. During the last year and a half, we are informed, the company has spent a large sum uselessly at the Trenowen part of the sett. The Trenowen engine is to be removed at once to Wheal Charlotte, where the shaft is down 80 fms., and in a good course of ore. The 80 west is driven 40 fms., principally in ore ground, with good lode in the end; while there is a great length of ore ground gone down in the bottom of the 70, before the 80 end; and there is also a good run of ore ground in the bottom of the 60, before



## THE VANCOUVER COAL MINING COMPANY (LIMITED).

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BROKER—C. W. Price, Esq., 54, Threadneedle-street.

OFFICES—16, GRESHAM HOUSE, OLD BROAD STREET.

## PROSPECTUS.

This company has been formed for the purpose of purchasing from the Hudson's Bay Company the settlement of Nanaimo, on the east of Vancouver's Island, and of thoroughly developing the important coal fields there from which the now well-known Vancouver coal is produced.

The purchase includes 6193 acres of valuable land in fee simple, with all the underlying coal and 100 dwelling-houses, two churches, schools, stores, workshops, machinery, steam-engines, wharves, salt works, saw mills, &c.

This property, of which the Islands of Newcastle and Douglas form part, surrounds the deep land-locked harbour of Nanaimo, in which jetties have been erected for the loading of vessels at all periods of the tide.

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The mines have been worked successfully for many years, thoroughly establishing the character of the coal, while proving the enormous extent of the deposit. They are, however, susceptible, under energetic and liberal management, of a greatly increased rate of production.

The surrender of their territorial rights over the Island has induced the Hudson's Bay Company to sell these coal fields, with all the machinery, plant, buildings, barges, &c., as they feel it expedient no longer to carry on in a locality apart from their future sphere of action an undertaking so foreign to their general objects and purposes.

Under these circumstances a provisional contract has been entered into for the purchase of the property, including all buildings, machinery, &c., upon very advantageous terms.

The rapid rise of British Columbia in wealth and population has already had a most important effect on the general prosperity of Vancouver, and the extremely advantageous position of Nanaimo offers such attraction to settlement that the land, with the timber, fisheries, salt works, &c., irrespective of the coal, must ere long acquire a value equal to the whole of the purchase money. Considering, however, that no other coal is worked in these colonies, and that the demand must increase with the increase of population and steam traffic, and looking to analogous cases in Australia and elsewhere, the directors feel that while in securing these coal fields, now successfully worked at an ascertained cost and profit, they are clearly not expending capital in untried or merely speculative adventure; they are acquiring a property the value of which may be developed to an extent far exceeding all present estimate.

Copies of the prospectus, with the names of the directors, and other information, may be obtained at the office, or of the bankers or brokers of the company, to whom such application must be made before the 16th day of June, when the list will be finally closed, as the greater portion of the capital has been already privately subscribed.

If no allotment be made, the deposit will be returned without deduction.

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To the Directors of the Vancouver Coal Mining Company (Limited).

GENTLEMAN.—Having paid to your credit with your bankers the sum of £1, I request that you will allot to me shares of £10 each in the above-mentioned company, and I hereby agree to accept the same, or any less number that may be allotted to me, subject to the regulations of the company, and to sign the memorandum and Articles of Association when required.

Name in full.....  
Description .....  
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2.—On the North Staffordshire Coal Field. By JOHN BRADBURY, JUN.

3.—On an Improved Safety-Cage for Miners. By T. FARRIMOND.

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CLASSIFIED IN DISTRICTS, WITH AN ALPHABETICAL INDEX,

And arranged in the following order:

Names of Mines and Number of Shares of each Mine—Produce—Names and Residences of the Purasers and Managers—together with the Agents' Names—Pay-days—Offices of Reference in London and elsewhere, and other useful information.

Compiled by J. WILLIAMS, General Commission Agent, Hayle,

Of whom the above work may be had; or of Banfield Brothers, printers, &c., Hayle, London: W. Kent and Co., 21, 51, and 52, Paternoster-row; the *Mining Journal* office, 26, Fleet-street; and all booksellers.

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FINANCIAL AND ENGINEERING CONTRACTS.

## NOTICES TO CORRESPONDENTS.

\*\* Much inconvenience having arisen, in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be regularly filed on receipt: it then forms an accumulating useful work of reference.

**STAMPS ON TACK-NOTES.**—J. W. (Bangor).—Provided the tack-note be of the ordinary character, containing only an agreement to grant a lease upon the person to whom the liberty to test the value of the minerals applying for it within a certain time, it should have a 2s. 6d. stamp upon it.

**CORNISH MINES AND LONDON OFFICES.**—Allow me to add another to your numerous correspondents on this question. I lately wrote several letters to the person of a mine in which I have a few shares, for information of how it was going on, but he has never condescended to notice my letters, and I hear similar complaints by others. I should like to hear the grounds on which the persons and agents justify this conduct, and why they and the local shareholders so vehemently oppose London offices. I see that in many cases where it has been adopted there is the greatest difficulty in getting the information forwarded, and they seem determined to prevent the London office being of that use for which it is intended. I am told that in Cornwall any important change in a mine is at once known in the locality, for it cannot be expected that the working miners will be silent on such things, and that there are people who are always on the look out for discoveries, or the one "cutting out," and they manage to get the earliest information, which is not very difficult. How can we compete with such odds against us? We hear sometimes that there is an "enquiry" for such and such shares, then that a good many have been purchased "for Cornwall," and in a few days we are told something of a discovery being made, after having sold our shares from exhausted patience and purses. On the other hand, we buy largely on reported improvements, many of the shares coming from the "county," as we afterwards discover, and, when too late, we are told that the lode has "fallen off." I trust you will be interested in legitimate mining to this important question, and that all interested in the subject will exert themselves to promote it.—**ANOTHER OUT-ADVENTURE**: June 11.

**EXTRACTION OF GOLD.**—**THE MARMATO PROCESS.**—The letter from Halifax, Nova Scotia, has been forwarded to Mr. Evan Hopkins.

therefore, that some effort will be made to secure such protective enactments as shall give confidence to capitalists, and as have frequently been pointed out as requisite in our columns.

## NORTH OF ENGLAND INSTITUTE OF MINING ENGINEERS.

A meeting of the members of this Institution took place on Thursday, June 3, at the rooms of the Institute, Neville Hall, when the following discussion on the paper of Mr. Dunn, "On the Red Sandstone of Cumberland;" on that of Mr. Gibsone, "On certain Formations in the same Tract of Country;" on that of Mr. Boyd, "On the Carboniferous Limestone of a portion of Northumberland;" and on that of the President (Mr. Nicholas Wood) "On the Relation of certain Coal Formations," was resumed.

Mr. Gibsone being absent, the discussion referred principally to the subjects of the other papers, which afforded a sufficiently varied field for observation and remark. Amongst other topics, some very remarkable facts were stated as to the various effects upon seams of coal, caused by the intersections of "whin-dykes."

Amongst these it was stated by the President that in cases of such intersection, where the coal was under-

lying sandstone, it had suffered much more injury than when underlying shale.

To account for this difference more than one hypothetical explanation might be offered, of more or less plausibility, but the singularity of the fact remained to be absolutely accounted for. In the course of the discussion

Mr. Boyd affirmed another fact, equally anomalous in appearance and difficult of explanation; this was the effect upon limestone of the intersection of a whin-dyke. Limestone, Mr. Boyd stated, when overlying a shale, he found in many cases to be quite unchanged in any way; whilst limestone underlying was found to be much altered, apparently by the operation of heat. Mr. Boyd's hypothesis to account for this difference was that the intersecting whin-dyke, whilst in the lava state, was forced through the limestone formation from below, until it overflowed its surface or upper surfaces. Hence, Mr. Boyd argued, the underlying limestone became changed on its upper surface; whilst limestone overlying, being deposited subsequently to this operation of nature, remained unchanged, not having been subjected to the same heat. In the course of this very interesting but somewhat intricate discussion, strong doubts also seemed to arise to the conformity of the red sandstone adjoined to, as found in different portions of the wide district under consideration. The red sandstone of Cumberland has generally been taken by geologists to belong to the red formation, betwixt which and those different groups classed, such as the "Old Red Sandstone," the coal measures are found. Some facts were, however, adduced in the course of the investigation, which were calculated to throw considerable doubt upon the supposed conformity between some of the red sandstone found in the north of Northumberland and Berwickshire, with that which is generally classed as the new red formation of the more western district of Cumberland; and reasons were advanced for concluding that some portion of these red sandstones might belong rather to the Devonian or upper portion of the old red formation, and consequently, be anterior to the great and well-defined formation known as the coal measures of this and other districts.

A brief discussion on the paper of Mr. S. C. Crone, "On Steam-Boil Explosions," was next brought on, but adjourned.

The PRESIDENT, lastly, favoured the meeting with a detail of the various specimens of coal from different parts of the world, and also of the drawings and models of machinery used in coal mining in various countries exhibited at the International Exhibition, which concluded the business of the day.

Before the meeting separated, Mr. JOHN MARLEY gave the following notice of an intended motion to be brought before the anniversary meeting in August next:—That Rule IX., by which four vice-presidents are elected annually, shall be altered so as that nine vice-presidents shall be elected; and that the three lowest in number of election-votes shall retire every year, and not be eligible for re-election at the meeting at which they retire; also, that in no case shall the office of vice-president be held more than three years consecutively by any member; and, further, that in future, the general meeting prior to the anniversary meeting, members for the various offices of the Institution shall be nominated, and that the officers elected from such nominated list at the annual meeting, in the same manner as already prescribed in this rule; and that the secretary send a list of persons nominated for election to the members a month previous to the annual meeting, instead of a list of all members, as now required.

Notices were also given by Mr. DUNN and Mr. DAGLIOL, one to move that members be empowered to introduce a friend at the general meetings of the society; the other to move that, in every alternate month in which general meetings are held the day of meeting shall be Saturday instead of Thursday, and the hour two o'clock.

## PRACTICAL COLLIERY OPERATIONS.

## COAL-HEAVING MACHINERY.

In the working of some mines, particularly coal mines, it is required to make longitudinal horizontal grooves, and also vertical or upright grooves communicating with each other so as to divide the upright face of the work into sections, bounded on the two sides and at the lower or upper, or both lower and upper, parts with grooves of such depth or extent as is necessary for determining the sizes of the sections which shall be removed by hand or otherwise from the upright surface which is being worked, and to these horizontal and upright grooves have heretofore for the most part been made by hand labour, using picks with handles, though it has been proposed to mount similar picks on carriages moved on rails or tramways, and to move them by the reaction of springs, wound up by man or by other power, and reciprocating cutters or picks, the stems of which are mounted horizontally in guides mounted transversely on carriages, arranged in rows on rails or tramways, have also before been proposed to be used, the moving stems of the picks or cutting tools being actuated by manual labour, and it has also been proposed to use compressed air-engines, in giving motion to drills, for drilling holes into the coal, or stone, or mineral veins in the earth, in order to facilitate the working of mines, and in other cases in giving motion to rotating tools, suitably constructed to break and pulverise the upright face of the end of a drift or tunnel.

Some fifteen months since, it will be recollect that an improvement was proposed by Mr. Ridley, of Low Wortley, and Mr. Rothery, the view of West Ardsley, according to which cutters were fixed to rocking arms, the necessary blows were given by springs. It seems that this invention, as first introduced required some modification, for we now find Mr. Ridley in connection with other gentlemen, patenting another machine. This invention consists in combining compressed air-engines with picks and cutting tools, such as hereafter explained, which are mounted on carriages, moved and guided by rail or tramways, such picks or cutting tools being arranged to cut longitudinal, horizontal, and also upright grooves to the desired depth or extent into the upright face of the work, and thus to divide the work into rectangular sections, each section being bounded by grooves on three or four sides. For these purposes a carriage mounted on wheels, suitable for being moved on a rail or tramway (which is laid down parallel with the upright surface of the work), is employed, on which is placed a compressed air-engine, which is constantly in connection by a suitable pipe



almost to show that prospects in their case are as good as ore discovered in other districts.

[The article which appeared in last week's Journal, under the heading of "Mining in Cornwall and Devon," was not furnished by our Truro correspondent.]

#### REPORT FROM NORTHUMBERLAND AND DURHAM.

JUNE 12.—There is little change of importance to notice this week in the Coal and Iron Trades. Some alteration in the state of affairs in America is looked forward to with great interest by the local manufacturers, and there is no doubt if matters were cleared up there would be a great improvement in the general trade of the district.

The monthly meeting of the Northern Institute of Mining Engineers was held on the 5th instant (the President in the chair). After considerable discussion on the papers of the President, Mr. Boyd, Mr. Dunn, and Mr. Gibsone, the subject was again adjourned, Mr. Gibsone not being present. Mr. Gibsone promises to give another section, which will illustrate the matter more fully. Mr. Crone's paper "On Steam-Boiler Explosions," with special reference to the Seaton Burn explosion, next came on for discussion. The President said he thought there was something in connection with these explosions which had not yet been found out. He said, in reference to the Byer Moor explosion, he considered there was something peculiar in the pressure of that boiler. Several members considering that the subject demanded a meeting purposely to consider it, the subject was adjourned, Mr. Berkeley promising to furnish some data taken at the time of the Byer Moor explosion. Mr. Marley gave notice of a motion at the annual meeting in August of an alteration in Rule 9—that in future there be nine vice-presidents instead of four, the three least in number of votes to retire at the next annual meeting, such three to be ineligible for re-election at that meeting, and that no member hold the office more than three years consecutively. Mr. Wood then gave some account of the coal and mining machinery in the International Exhibition, remarking on the small number of specimens of coal from this district, when the meeting adjourned after a sitting of nearly three hours duration.

[In another column we give a detailed report of the proceedings at the Northern Institute of Mining Engineers, which has been forwarded to us from the Institution.]

A meeting of delegates was held at Durham, on Saturday, to consider the rules submitted for the formation of a Permanent Relief Fund—Mr. J. Howie in the chair. The Chairman read the rules, most of which seem to be very simple and to the point, and promise well for the ultimate success of the movement. The following is an abstract:—The society is to be called the Northumberland and Durham Miners' Permanent Relief Fund. Its benefits may not be exclusively confined to the two counties, but shall be open to the co-operation of miners, when organised, of other districts of Britain. It has for its object the raising of funds by subscription, to provide in cases of fatal accidents for the widows or children, or other dependents relatives of the deceased. In cases of accidents, not fatal, but where the workman is permanently disabled, to make suitable provision. When a member has been laid off work from an accident for a period of six months he shall then be entitled to relief from the funds as a permanently disabled member. The members shall consist of all persons employed in or about collieries; other persons by becoming donors to the amount of 10s., or annual subscribers of 1s., may become honorary members, but not entitled to pecuniary benefit. That each colliery or branch have a committee, president, secretary, and treasurer. Districts to be formed by collieries (not more than 12) uniting, which may be conveniently situated to each other. The business of the society to be managed by a committee of 13, including president, secretary, and treasurer, to be chosen at the annual delegate meeting to be held on the first Saturday in May in Durham and Newcastle alternately. They shall meet quarterly for the transaction of business. That each member pay 2d., half members 1d., per fortnight, and if any member neglect to pay his contributions for six weeks he shall be fined 2d., and if behind three months he shall be excluded from all benefits of the society until he pay up all arrears, and a fine of 1s. Some dispensation then took place, some of the rules being slightly altered or amended. In cases of fatal accident it was agreed that the widow, or other relative upon whom the care of the family would fall, should receive 5s. for funeral expenses, and 5s. per week afterwards, each of the children who were dependent upon the labour of the deceased to receive 2s. per week. A committee of 13 gentlemen and miners was appointed, of whom Mr. Henry Taylor and Mr. J. J. Hunter, of Newcastle, and Mr. Bramwell, of Durham, were to be asked to form a part. Mr. Leithhead was elected treasurer, and Mr. Alexander Blyth honorary secretary.

Among the festivities at this time of the year, the *soiree* of the Killingworth Mechanics' Institute, on Monday, is deserving of special mention. This is a colliery village, situated about eight miles north-east of Newcastle. The weather was very unpropitious, but, despite the rain, a numerous company assembled, numbering about 1200 persons. After tea a meeting was held, Mr. S. C. Crone, the resident viewer of the colliery, presiding. In the course of his address he said—I trust our anticipations as to the result will be realised, and that our building fund will be considerably increased, as it has been determined to devote any profit that may arise from the present meeting to the fund for erecting a suitable building for a mechanics' institution, which it has been designed shall take the form of a memorial building to the genius of two of the most eminent engineers that ever lived—George and Robert Stephenson, whose cause of usefulness began and was developed at this old and respected place of Killingworth. They have passed away, but their names yet live, and their works will endure for ages to come. It is reasonable to hope that mechanics' institutions will be instrumental in the spread of scientific and general knowledge amongst the class for whom they are more specially designed, and this, in a certain sense, assists in causing more care to avoid accidents in our coal mines. The proprietors of collieries are most anxious that everything should be done to protect the lives and property of their workmen from injury; but it is no less incumbent on every individual workman to exercise the most watchful care and caution to guard against accident, and strictly to adhere to the rules and instructions for his guidance. Mr. Crone also alluded to the co-operative store movement. He thought they were not formed upon equitable principles to the community at large. With all credit to those gentlemen who have encouraged the establishment of these stores, I cannot agree with the principle altogether. Co-operative societies for manufacturing purposes, or for building societies, are good, and I think that any person may find employment for his savings or his capital in a legitimate way with benefit to himself and others, but let us not injure others to benefit ourselves when it may be avoided. The number of members in the institute is 73, a very respectable number.

Mr. R. S. Johnson, late viewer of the collieries held under the West Hartlepool Harbour and Railway Company, has been presented with four superb silver claret jugs, by a number of his friends, as a mark of their esteem and regard.

The following is the state of the blast furnaces of the district on the 1st day of June, 1862:—

|                                     | In. | Out. | Total. |
|-------------------------------------|-----|------|--------|
| Eaton—Bolckow and Vaughan           | 9   | —    | 9      |
| " Clay-lane Company                 | 2   | 1    | 3      |
| " Samuelson and Co.                 | 3   | —    | 3      |
| Cargo Fleet—Jones, Dunning, and Co. | 2   | —    | 2      |
| " Cochrane and Co.                  | 2   | —    | 2      |
| " Gilkes, Wilson, Pense, and Co.    | 4   | 1    | 5      |
| Middlesborough—Bolckow and Vaughan  | 2   | 1    | 3      |
| " Hopkins and Co.                   | 2   | —    | 2      |
| Port Clarence—Bell Brothers         | 5   | 1    | 6      |
| Norton—Warner, Lucas, and Barret    | 2   | 1    | 3      |
| Perry Hill—Morrison                 | —   | —    | 2      |
| Stockton—Holdsworth and Co.         | 3   | —    | 3      |
| Thornaby—Whitowell W. and Co.       | 2   | 1    | 3      |
| Darlington—South Durham Company     | 2   | 1    | 3      |
| Witton-park—Bolckow and Vaughan     | 3   | 1    | 4      |
| Stanhope—Weardale Iron Company      | —   | 1    | 1      |
| Tow Law—Weardale Iron Company       | 4   | 1    | 5      |
| Consett—Derwent Iron Company        | 4   | 14   | 18     |
| Total.                              | 54  | 25   | 79     |
| All furnaces, May 1, 1858           | 43  | 20   | 63     |
| " " 1859                            | 56  | 11   | 67     |
| " " 1860                            | 53  | 16   | 69     |
| " " 1861                            | 50  | 50   | 26     |

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

JUNE 12.—The Iron Trade continues to manifest the degree of improvement previously mentioned, and several of the works are fairly supplied with orders for plates, sheets, angle iron, &c., whilst the demand for common bars is quiet. Some of the iron making here is understood to be for the Southern States of America. How it is to reach its destination is a question for those who undertake the venture. The Pig-Iron manufacturers are very firm, and a general advance of from 2s. 6d. to 5s. has been made in the quotations, the higher rate of advance having taken place in the hematite pigs, and in some qualities of cinder pigs; the hematites have greatly improved recently. A further advance is announced as probable by the Workington Company. The wrought-iron manufacturers are generally unwilling to acknowledge that any or much advance has taken place in pig-iron, and probably some of them who are large purchasers may have bought at little or no advance on last quarter-day's rates; but there can be no doubt that the price is higher.

The inquest in connection with the Bradley Colliery accident was concluded on Tuesday last. Plans and sections of the workings were produced, and evidence given which fully agreed with the account of the accident given in last week's Journal. The whole direction of the work was entrusted to the ground bailiff, Mr. John Harvey, sen., and he stated that the extremity of the headway which was being driven, and into which the irrigation of water took place, was 20 yards from the place in the Black Coal workings, to which he expected the accumulated water reached, and which the headway was intended to draw off. Other witnesses, including the chartermaster, said they understood that it was 16 ft. distant. The examination of the spot subsequent to the accident showed that the water had risen to a gate-road in the thick coal immediately above the headway, and between which and it there was only a thickness of 3 ft. 6 in., or 4 ft.—The chartermaster said he was never informed of the existence of this gate-road, and that he supposed he was under the solid coal.—The ground bailiff said he did not for a moment anticipate the water had risen so as to fill the gate-road, because from his previous knowledge of the mine he had found that the water always ran off to the engine pit by some outlet when it had reached the height at which he had calculated it stood. He had been unable to ascertain the position of the water in the thick coal by actual inspection, in consequence of the accumulation of suffocating gases in those workings. He also stated that when in the headway on the day before the accident, he gave orders to the dray (or chartermaster's foreman), who was killed, not to carry the heading further until boring rods were used, and to go on bricking the excavation already made; but it was plain that those orders had not been obeyed—in fact,

a man named Venables fired a shot in the roof on the same evening; and this man, who was not in the working at the time of the accident, deposed that the doggy never told him the heading was to be stopped by the orders of the ground bailiff, although a workman whom he met as he was going to work said such orders had been given.—Mr. Baker, the Mines Inspector, was present during the enquiry, and examined the witness, and explained the plans to the jury, and he expressed his opinion that had the provisions of the Act of Parliament as to boring where the presence of water was anticipated been compiled with, the accident would not have occurred.—The jury, after a protracted deliberation of two hours, returned the following verdict:—"That the death of the seven deceased persons was caused by a rush of water into the pit in which they were working, occasioned by the neglect of John Harvey, sen., but the jury do not consider the evidence sufficient to criminalise him."

Mr. Kesteven, a member of the highly respectable firm to whom the colliery belongs, said they deeply regretted the occurrence of the sad accident. They had hitherto always found Harvey trustworthy, and had considered him capable of performing his duties. They were very desirous of doing all they could to ensure the safety of the workmen in their employ. The jury entirely exonerated the proprietors from any blame.

#### REPORT FROM YORKSHIRE, DERBYSHIRE, AND LANCASHIRE.

JUNE 12.—The festival of Whitsuntide has interfered with the regular routine of business, but the condition of the labouring classes in the coal and iron trades is such that their means of employment have been seriously crippled. Notwithstanding the regular supplies of iron required for railways and the immense orders which the Government has latterly given out for armour plates, the condition of the Iron Trade in these counties is exceedingly unsatisfactory.

At Elsecar the greater part of the men will leave work when their notices expire, and as a large number of hands are employed, and the material welfare of the district depends upon the prosperity of the works, all parties in the neighbourhood will feel the effects of the suspension of the works most seriously. There is no improvement to note in the Steel Trade, the number of orders usually given out at this period of the year being much below the average. Some large orders have recently been received from Russia for tools for machinery, and there is a better demand for files, but the trade, on the whole, is seriously depressed.

The only exception is the crucible steel trade, the manufacturers of which have been doing an immense trade, some of the houses having been working day and night to meet the extensive demands made both for home and continental requirements.

The Coal Trade is exceedingly depressed, and coalmasters generally find it difficult to keep their works going half the regular time.

At some of the most successful collieries, where large contracts for gas and other works have to be supplied, there is little trade doing, and the colliers are not making more than half

time, and some little more than four days' work in the fortnight. The greatest complaints are made of the existence of underselling, and some coalmasters affirm that they are glad to rid the mineral almost at any price, if only for the sake of keeping their employees from the state bordering on starvation. The great depression prevailing in the manufacturing districts of Lancashire is exercising such a powerful influence all over the manufacturing towns in the kingdom, that it is difficult to conceive when an important change for the better may take place. It would scarcely be believed that notwithstanding the distress prevailing in the colliery districts, some colliers have been found stupid enough to strike work for an advance in wages. We allude to those at Cinder Hill, near Nottingham, who are now asking for an advance in wages, about 600 of whom are walking about the streets begging for their daily bread.

There has been no alteration in the position of the Derbyshire Lead Mines for several weeks past; the extreme depression of trade having put a stop to all speculative progress and enterprise. The Mining Share Market is very flat, and there is literally nothing doing that would justify a report.

Some few weeks since I referred to a strike of the puddlers at the Milton and Elsecar Ironworks, near Barnsley, and now that the strike is terminated, it turns out that the complaint of the men, that the iron given to them to work was bad, was entirely without foundation. The men stated that the company were giving them such bad iron to work that it took them four hours a day to get out their six heats, which with good iron they could do in nine hours, hence their leaving their work. The company had three of the ringleaders up before the magistrates, and at the hearing they employed Mr. Roberts (the attorney-general), of Manchester, to defend them, who made it appear that the manager had agreed to give them 1 cwt. of plate, or refined iron, to every 3 cwt. of pig-iron, and that he had promised this as a permanent thing, but had taken it away again, hence the cause of their strike. The magistrates appeared to take this view of the matter, and dismissed the cases; consequently this, to a certain extent, was a triumph for the men, and has caused them to lose something like six weeks' work; as they had made up their minds they would not work the iron which they knocked off at, and unless this was changed, and 1 cwt. of refined iron substituted, they would not work. Of course, the company were determined that neither change should be made, and that, if the men did begin, they should work the iron they had left. On Wednesday evening the men went back, and worked it, and not only got their heats out in the ordinary time, but made first-rate iron. It should be understood by the public, that what puddlers mean by bad iron is when the pig-iron is grey, which takes a little extra work, and makes good iron for the master; but what they consider good iron for themselves is white and mottled, which takes little work, but makes bad iron for the master.

Considerable excitement has been occasioned in the colliery districts by the practical application of a machine for "winning coals," which is calculated to work an important change in the coal trade of the country. It is called a coal-cutting machine, is worked by a compressed air-engine, and is now in practical operation on the premises of the West Ardsley Coal Company. The Balaklava pit, in which the machine is now in operation, is 170 yards deep, and has, we believe, the "working face on the plane." But the principle of the implement has not been so thoroughly elaborated by its scientific improvers that it is applicable to all kinds of pits, whether of coal, ironstone, or fire-clay. The engine-house contains a powerful engine and a compressed air-engine, and compressed air itself being conducted in patent pipes to a distance of nearly a mile from the bottom of the driving shaft, the pressure being about 60 lbs. to the inch. The cutter itself is a neatly-constructed machine made to run on the tub-carriage way. It requires a man to direct it, and this "cutter" can, by working round his wheel, advance the pick or cutter over the face of the bed of coal, and thus, in the course of working, bring down the blocks of the mineral as he requires them. It is one of the principles of the "compressed air coal cutter" to improve ventilation. As the cutter is working away with considerable force at the coal, a stream of pure atmosphere is discharged from the machine at every stroke, and this current of fresh and dry air, by filling the "hole," cannot fail of adding considerably to the ventilation. The blast from the compressed air-engine is so tremendous that on being directed for a few moments on the ground the solid earth was at once bodily displaced. The cutter has now been working for some time in the pit, but the latest developments and improvements are only just being introduced, and we are consequently at present unable to furnish detailed information as to the commercial results; but that these will be satisfactory there is no reason to doubt.

A serious accident has occurred at Messrs. Potter and Co.'s new colliery, at Knot Mill, Darwen. The miners were engaged in ramming home a shot for blasting the hard rock, when a spark was produced which exploded the charge. Fragments of rock were scattered in all directions, and three of the miners were very seriously injured. Andrew Thompson had both his hands nearly blown off, and was otherwise injured. John Holden was very badly bruised and scorched. Thomas Harwood was bruised about the head, but with assistance he was able to walk.

The dispute between the puddlers employed by Messrs. Dawes, Ironmasters, of Elsecar, and their employers, has been settled, and the necessity which induced them to suspend the works has consequently been removed.

The men, who had been out on strike for a considerable time, resumed work at the old terms on Wednesday, and the best of feeling now exists between both parties, in proof of which Messrs. Dawes have promised their men a trip to Belle Vue Gardens, Manchester, and they have favourably entertained a proposal for a treat to the Exhibition some time during the season.

#### REPORT FROM MONMOUTH AND SOUTH WALES.

JUNE 12.—As is usually the case on the advent of holidays, a few days are lost at nearly all the works, which, if it happened at any other time, would be considered rather an unwelcome sign. It is remarkable to note the spirited manner in which the volunteer movement has been taken up by the colliers and miners generally, and if the same progress is made during the next two years as has been done during the last two years, it may be safely asserted that Britain will possess an army of miners. Trade remains to a great extent in about the same condition as mentioned in last week's report. The ironworks at Ebby Vale, Beaumaris, Tredegar, Aberdare, Dowlais, &c., are proceeding as usual, every branch being steadily, though, perhaps, not actively employed. The expectation of orders for iron plates, which, it is generally thought, must be had from this district, has given considerable encouragement to the ironmasters, who, it must be admitted, have lately had great difficulties to contend with. The Coal Trade, also, remains in the same dull state as heretofore, which greatly retards legitimate speculation. Orders are not particularly scarce, but the prices offered are so low that vessels can hardly be obtained to accept the freights. The Admiralty are advertising for tenders for 3000 tons of South Wales steam-coal, to be delivered at St. Paul de Loando. This, notwithstanding that it is but a small contract, will infuse a new spirit amongst the coalmasters. Last week the success of Messrs. Webb and Spittle, of Aberber, was noticed, after having incurred a large outlay. The coal is of good house properties, and the vein 2 ft. 7 in. thick. The spirited proprietors are making every exertion to commence working without delay. The Risca Company's pits afford more regular employment than was the case some two or three weeks since. As stated in a previous number of the Journal, the Tredegar Coal Company are in treaty for large coal contracts to the Italian Government, and there is every prospect that they will be successful.

Speculation in collieries has lately met with considerable disfavour, and there are many reasons why such should be the case. Coal mines have been brought into the market, and companies formed by interested parties to work them, with but little hope of practical success. The result has been that the shareholders' money is squandered, and ultimately a winding-up takes place. As may be easily supposed, this has an unfortunate influence on legitimate schemes brought before the public, as it has been the means on many occasions of preventing the necessary capital being subscribed. "Perseverance surmounts difficulties," however, and it is gratifying to see that three substantial companies are now formed for working coal mines in this district. The Amman Colliery Company, which is now an established fact, has a field of unworked coal not surpassed in the Abergavenny valley. Tenders for extensive alterations in the shafts and workings have been advertised in the Journal, and everything seems to be going on in the most satisfactory manner. The Llanmairia Colliery Company, which is another recently-started concern, is also proceeding in a satisfactory manner. A large quantity of coal is now on the bank, and the quality proves to be a most superior house coal. The Glynllif Colliery Company comes next under notice, and it must be admitted the property as reported upon by the company's engineer offers extraordinary inducements. It is not a speculation to sink some 150 or 200 yards for a particular vein, but the coal has been actually proved a few yards from the surface, and in many places it crops out. The expense of the preliminary explorations can be very small. There is no lack of railway accommodation either; and with all these favourable prospects, it is strange if the company does not succeed.

ALBERT IRON AND CEMENT WORKS (near Whitby).—After the many struggles and difficulties this company has had to contend with, they have now got into full working order. The furnace is erected on the newest and best construction, and is turning out a large quantity of first-class iron, the quality of which has been tested, and found to be very superior. The shares, which at one time could not be sold at any price,

are now eagerly sought after by first-class investors; the holders are now asking a premium, and but few shares are in the market. The shareholders are now looking forward to good and lasting dividends.

#### THE COAL TRADE—EXTENSION OF COLLIERIES OPERATIONS.

The very valuable collection of specimens of fossil fuel, the products of Austrian mines, brought together in the Austrian department of the International Exhibition, has naturally caused attention to be directed to the various districts from which they have been obtained, and the ultimate result will, doubtless, be that English capital will be largely invested in Austrian colliery enterprise. The specimens exhibited represent collieries from which upwards of 2,000,000 tons of coal and lignite were raised in 1860, the total amount at present statistically registered being about 3,500,000 tons. During the year in question there was raised from the various districts exhibiting in—Bohemia, 692,840 tons; Moravia and Silesia, 11,000 tons; Galicia, 56,000 tons; Hungary and Banat, 297,100 tons; Transylvania, Military Border, Croatia, and Esclavonia, 10,180 tons; Austria proper, 121,260 tons; Stiria, 112,080 tons; Carinthia, 36,450 tons; Carniola, 7,370 tons; and Dalmatia, 6,500 tons.

From these figures it will be seen that Bohemia occupies the first place in the list, and whether we look at the samples of coal or lignite we must admit that there are great inducements for the capitalist. The Bohemian coal is of excellent quality, and is chiefly worked with Austrian capital. The Prince Schwarzenberg, the Imperial State Railroad Company, the Crown, the Elector



[JUNE 14, 1862]

**NATIONAL PROVINCIAL BANK OF ENGLAND.**

The Directors of the National Provincial Bank of England hereby give notice that a HALF-YEARLY DIVIDEND at the rate of EIGHT PER CENT. PER ANNUM, and a HALF-YEARLY BONUS of SEVEN PER CENT., will be PAYABLE on the company's stock on and after the 10th day of July next, when the dividend and bonus warrants will be obtained at the company's office, 112, Bishopsgate-street, or at the different branches.

The transfer books will be closed on and after Thursday, the 12th inst., until the dividend and bonus become payable.

By order of the Court of Directors,

DAN. ROBERTSON, Agent and Manager.

112, Bishopsgate-street, London, June 10, 1862.

**C O L O N I A L B A N K .**

Subscribed capital, £2,000,000. Paid-up capital, £500,000.

The Court of Directors of the Colonial Bank hereby give notice that, in pursuance of the provisions of the Charter, a HALF-YEARLY GENERAL MEETING of proprietors will be HELD on WEDNESDAY, the 2d July, 1862, at the London Tavern, Bishopsgate-street, at Twelve o'clock precisely, to receive the report of the proceedings of the corporation.

The transfer books of the corporation will be closed on the 21st inst., and re-opened on the 14th of July.

By order of the Court of Directors,

13, Bishopsgate-street Within, June 9, 1862.

C. A. CALVERT, Sec.

**BARMOUTH CONSOLS COPPER, SILVER-LEAD, AND GOLD MINING COMPANY (LIMITED).**

Incorporated pursuant to the Joint-Stock Companies Acts, 1856, 1857, 1858, by which the liability of shareholders is strictly limited to the amount of their subscriptions.

Capital £20,000, in 20,000 shares of £1 each.

Deposit, 2s. 6d. per share on application, and 2s. 6d. on allotment; future calls not to exceed 2s. 6d. per share, and not to be made at less intervals than two months.

OFFICES—31, NEW BROAD STREET, E.C.

A company is being formed for the purpose of working this valuable property.

Reports and particulars will be given next week. On and after the 10th inst. application may be made to the secretary for prospectuses and shares.

June 6, 1862.

CHAR. BAKER, Sec.

**THE MIDLAND STEAM BOILER INSPECTION AND ASSURANCE COMPANY.**

Registered provisionally pursuant to the 7th and 8th Vic., c. 110.

Capital, £50,000, in 5000 shares of £10 per share.

TRUSTEE.

WILLIAM ORME FOSTER, Esq., M.P., Stourbridge Ironworks.

WILLIAM HANBURY SPARROW, Esq., Stowmarket Ironworks.

PROVISIONAL DIRECTORS.

PHILIP WILLIAMS, Esq., Wednesbury Oak Ironworks, Chairman.

GEORGE JONES BARKER, Esq., Chilington Ironworks, Vice-Chairman.

JOHN HARTLEY, Esq., Shrubbery Ironworks, Wolverhampton.

WILLIAM M. LLOYD, Esq., Old Park Ironworks, Wednesbury.

HENRY WARD, Esq., Priestfields Ironworks, Bilston.

WILLIAM MATHEWS, Esq., Corby Hall Ironworks, Kingswinford.

SAMUEL MILLS, Esq., Darlaston-green Ironworks.

WALTER WILLIAMS, Jun., Esq., Wednesbury Oak Ironworks.

ROBERT HEATH, Esq., Bidulph Valley Ironworks, Tunstall.

WILLIAM BARROWS, Jun., Esq., Bloomfield Ironworks, Tipton.

(With power to add to their number.)

BANKERS—The Bilston District Banking Company.

SOLICITORS—Messrs. H. and J. Underhill.

SECRETARY—Mr. John Underhill.

ENGINEER—Mr. Edward Bindon Martin.

OFFICES—EXCHANGE CHAMBERS, WOLVERHAMPTON.

PROSPECTUS.

In the manufacturing districts of the Midland Counties it has long been felt that some means should be adopted to lessen, and, if possible, prevent the serious loss of life and property attendant on the occasional explosion of steam-boilers, and it has been ascertained that this result may be best secured by a strict inspecting supervision, and by raising a capital for assurance sufficient to meet any damage caused by such accidents.

The late lamentable accident at Millfield Ironworks, resulting in the great destruction of human life and serious damage to property, has powerfully impressed the promoters of this company with the necessity of taking immediate steps to mitigate and prevent any such future calamity, by organising a company to carry out their views, feeling satisfied that complete inspection can be best secured under the control of parties really interested in such inspection rather than by Government or other interference.

An experienced engineer has been appointed, whose duties will be to inspect from time to time all boilers insured by the company, and give advice as to the repair, alteration, and construction of the same, and of the engines and machinery worked thereby; and this will be accomplished by a small annual charge. The owners of boilers will also be enabled to ensure their valuable manufacturing premises against those risks not hitherto provided for by the ordinary assurance companies, and to alleviate the distress and destitution of the families of workmen on payment of a sum insignificant as compared with the advantages obtained.

Companies with similar objects have been formed in other parts of the country, and whilst proving extremely useful to the insured, have also remunerated the shareholders largely. The rates of assurance established by existing companies will be carefully weighed by the directors, with the view of producing as low a scale as may be compatible with safety and the due interest of the shareholders, and extending the benefits of the company to all persons working steam-power. When the vast number of steam-boilers in use within the district is considered, it will be obvious that it will require but small premiums to produce very considerable profits.

Applications for shares must be made to Messrs. H. and J. E. UNDERHILL, solicitors; or to Mr. JOHN UNDERHILL, secretary, at their offices, Exchange Chambers, Wolverhampton; and also to Mr. EDWARD BINDON MARTIN, engineer, Stourbridge, from whom may be obtained any information as to terms of assurance, and as to the preliminary inspection required.

FORM OF APPLICATION FOR SHARES.

To the Directors of the Midland Steam-Boiler Inspection and Assurance Company.

GENTLEMEN.—I request you will allot me \_\_\_\_\_ shares, of £10 each, in the above undertaking, the whole of which, or any loss number that may be allotted me, I agree to accept, and to pay the sum of 10s. thereon upon allotment, and I undertake to execute the deed of the company when called upon.

Name \_\_\_\_\_  
Residence \_\_\_\_\_  
Description \_\_\_\_\_  
Reference \_\_\_\_\_

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 1862.

**LANCASHIRE AND YORKSHIRE WAGGON COMPANY (LIMITED).**

Capital, £100,000.

The above company are PREPARED TO BUILD and LET FOR HIRE from TEN to ONE HUNDRED MINERAL WAGONS of the best possible construction.—For terms &c., apply to the undersigned.

J. BLOOMELEY, Sec.

OFFICES—No. 4, BROAD STREET.

**THE LEESWOOD CANNEL AND GAS COAL COMPANY (LIMITED).**

Incorporated under the Joint-Stock Companies Acts, 1856-57, whereby the liability of the shareholders is limited to the amount of their respective shares.

Capital, £100,000, in 50,000 shares of £2 each.

Deposit, 2s. per share on application, and 1s. on allotment.

No further call to be made until after a dividend of 10 per cent. has been paid to the shareholders.

F. S. BOLTON, Esq., Broad-street Metal Works, Birmingham, and Cheadle, Staffordshire.

R. J. CLARKE, Esq., 4, Brabant-court, Philpot-lane (Director of the County Gas Company), LETTSOM & ELLIOT, Esq., 7, Hyde-park Gate South.

J. GOLDINGHAM, Esq., Cross Deep Hall, Twickenham.

GEORGE HAUGHTON, Esq., Flooksbrough, Chester.

JOHN JERDEIN, Esq. (Messrs. Lee and Jerdein, Coal Exchange, and 9, Lancaster-street, E.C.), STEVENS, Esq., Darlington Works, Southwark Bridge-road.

M. BROWN WESTHEAD, Esq. (Messrs. Westhead and Co., Manchester).

AUDITOR.

W. BARTON FORD, Esq. (Messrs. Clark, Ford, and Co., accountants), 7, Nicholas-lane, W. J. VIAN, Esq. (Railway Passengers' Assurance Company), 64, Cornhill.

BANKERS—London and County Bank, Lombard-street.

SOLICITORS—Messrs. R. and S. MULLEN, 7, Foubly; Messrs. Tyndall and Johnson, Birmingham.

BROKERS—Messrs. St. ALPHONSE and HALLS, 75, Old Broad-street; W. J. SCOTT, Esq., Waterloo-street, Birmingham.

SECRETARY (pro tem.)—John Collett, Esq.

TEMPORARY OFFICES—7, NICHOLAS LANE, LOMBARD STREET, E.C.

ABRIDGED PROSPECTUS.

This company is formed for the purpose of purchasing and thoroughly working and developing the well-known Leeswood Collieries, near Mold, Flintshire, where an extraordinary discovery of Cannel coal has lately been made.

The collieries are at the present time in profitable operation, and considerable quantities of very superior Cannel coal (upwards of 2500 tons per month) are being raised, and sold at prices which leave a large profit.

The quality of gas produced from the Leeswood Cannel coal is equal to that obtained from the well-known Torbane Hill Mineral, or Boghead, which realises so high a price (about 40s. per ton) in Scotland.—See Dr. FYFE'S (of Aberdeen) Report for Comparative Value of the Leeswood with this and the other Canals.

Contracts already exist with gas and other companies for upwards of 20,000 tons per annum of the Leeswood Cannel coal, thus ensuring a sale for the whole amount of the present raisings; and additional contracts, to at least double this extent, can be made directly the increased yield of the collieries will afford the requisite supply.

The present get-and-sell of Cannel coal from the proved area alone (without taking into account the other proved seams) will yield for upwards of 20 years a certain dividend of above 10 per cent. on the entire capital of £100,000, after making a liberal allowance for all possible expenses and contingencies (see statement of actual raisings, sales, and expenditure for January, February, and March, 1862), but with the proposed additional pits, by an outlay not exceeding £10,000, the amount raised will be more than doubled, and the dividends increased in proportion.—See reports of Messrs. MacCulloch, MacDougal Smith, and E. C. Webster, of Rushton.

The whole of the above statements have been thoroughly tested and verified by the auditors.

Prospectuses in full, reports, statements of actual workings, profits, &c., and forms of application for shares, can be obtained at the solicitors, brokers, and at the offices of the company, from whence they will also be forwarded free by post if required.

**THE LEESWOOD CANNEL AND GAS COAL COMPANY (LIMITED).**

Notice is hereby given, that NO APPLICATION FOR SHARES in this company will be RECEIVED from London after SATURDAY, the 1st Inst., or from the country after WEDNESDAY, the 25th Inst.

By order, JOHN COLLETT, Sec. pro tem.

7, Nicholas-lane, Lombard-street, June 14, 1862.

**THE MINING JOURNAL.****In the Court of the Vice-Warden of the Stannaries.**

Stannaries of Cornwall.

In the consolidated Causes of CONDY v. WARE; and

WELSH v. WARE.

**IN RE PELYN WOOD MINE.**

**T**O BE SOLD, pursuant to two several Orders made in the above Causes, and dated respectively the 18th and 26th days of April last, BY PUBLIC AUCTION, at Pelyn Wood Mine, in the parish of Lanlivery, within the said Stannaries, on Monday, the 30th day of June inst., at Eleven o'clock in the forenoon, either together or in lots, a WATER-WHEEL 50 ft. diameter, with crank and bearings, and various other MINING MACHINERY and MATERIALS at and upon the said mine, or belonging thereto, or to the adventurers therein in respect thereof, particulars of which appear in handbills.

For viewing the same, application may be made to the officer in possession; and for further particulars to

Mr. STOKES, Solicitor, Truro

(Agent for Messrs. Pauli and Linton, Solicitors, Plymouth); or to

Mr. ROBERTS, Solicitor, Truro

(Agent for E. C. Whitehurst, Solicitor, Guildhall Chambers, Basinghall-street, London). Dated Registrar's Office, Truro, June 11, 1862.

**In the Court of the Vice-Warden of the Stannaries.**

Stannaries of Cornwall.

**P**URSUANT to the several Orders, or Decrees, made in the consolidated Causes of—

CONDY v. WARE; and

WELSH v. WARE.

The CREDITORS in respect of PELYN WOOD MINE, in the parish of Lanlivery, within the said Stannaries, are, on or before the 25th day of June inst., to COME IN and PROVE THEIR DEBTS before the Registrar of the said Court, at his office, in Truro, or in default thereof they will be excluded the benefit of the said decrees.

Dated Registrar's Office, Truro, June 11, 1862.

**In the Court of the Vice-Warden of the Stannaries.**

Stannaries of Cornwall.

**P**URSUANT to the several Orders, or Decrees, made in the consolidated Causes of—

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Dated Registrar's Office, Truro, June 11, 1862.

**In Chancery.**

THE MASTER OF THE ROLLS AT CHAMBERS.

**I**N the MATTER of the JOINT-STOCK COMPANIES WINDING-UP ACTS, 1848 and 1849, and 1857, and in the MATTER of the NORTH WHEAL EXMOUTH MINING COMPANY.—Notice is hereby given, that all parties claiming to be CREDITORS of the above-named company are to COME IN and PROVE THEIR DEBTS before the Master of the Rolls, the Judge of the High Court of Chancery, to whose Court the winding-up of this matter is attached, at his chambers, Holls-yard, Chancery-lane, in the county of Middlesex; and until they shall so come in they will be precluded from commencing or prosecuting any proceeding of their debts.

And notice is hereby further given, that the said Judge has appointed Monday, the 30th day of June, 1862, at Twelve o'clock at noon precisely, at his chambers, as before, for hearing and adjudicating upon the claims.

GEO. HUME, Chief Clerk.

FREDK. WHINNEY, 5, Salle-street, Lincoln's Inn, Official Manager.

FREDK. WM. SNELL, 1, George-street, Mansion House, Solicitor.

Dated the 12th day of June, 1862.

## SCOTLAND.

**EXTENSIVE MINERAL, GRANITE, AND MARBLE FIELDS TO LET.**—The MARQUIS OF BREADALBANE is READY to TREAT for a large of the MINERALS on his ESTATES in the counties of PERTH and ARGYLL. LEAD MINES at TYNDRUM have been in operation for many years, and are in working order, with powerful crushing and washing apparatus. Extensive trials have been made in other parts at considerable expense, and the minerals have been proved to contain copper, lead rich in silver, from 100 to 200 ozs., and even 300 ozs. of silver to ton of ore. Several tons of this ore have brought £50 per ton in the English markets, chromite, iron, hematite, pyrites, sulphate of barytes, &c. Large quantities of these minerals have also been found. Smelting and chemical works have been erected on the south side of Loch Tay, and water-power is available at almost every point. The LANDS of BARRS, LOCHTEAVESIDE, with right to raise granite on any other part of the Breadalbane property on Lochteavieside, and with the COMMODIOUS HOMES ON BARS, all in good repair. This is one of the largest fields of granite and boulders on Barrs, all in good repair. This is one of the largest fields of granite and boulders on Barrs, all in good repair. The quality is very fine, and any quantity, in blocks up to 10 ft. long, can be raised. Barra quarry, which is about 18 miles from Oban, is in good working order, and vessels of considerable tonnage can load in deep water with a crane at the breast of the quarry. There are several powerful cranes, and a complete assortment of tools, which will be sold over to a tenant on entry, at valuation. It is believed that many other quarries close to the shore, and equally convenient in every way, might be worked to much advantage.

**MARBLE QUARRIES OF CADDETON,** at ARDMADDY, near Easdale. They are situated near the sea shore, and in the immediate neighbourhood of an excellent stone shipping quay. Immediate entry may be had, and every encouragement will be given to an enterprising party.

In connection with the granite quarries, there may be LET to the tenant the HOUSE of GROUNDS of FRISKY, situated on the Clyde, near Bowling, with right to land and to ship minerals, granite, and other commodities at the pier on the lands of Frisky, Bowling, without paying any dues. The grounds at the house extend to one or two acres, and may be converted into yards for the storing and polishing of the granite. Apply to Messrs. DAVIDSON and SYME, W.S., Edinburgh; or JAMES F. WILLIE, Bolt-head, Aberfeldy. N.B. The latter of whom will give directions for showing the different localities, with the exception of the marble quarries, which will be seen on application to the Manager, at the Easdale Estate Quarries, by Oban; and the house and grounds of Frisky, which will be shown by Mr. SPARROW, at Bowling Wharf.—June 1862.

**EXMOUTH MINE, CHRISTOWE, DEVON.—TO BE SOLD,** by private contract, the following ENGINES:—ONE 70 in. cylinder PUMPING ENGINE, by Hocking and Loam, equal beam, 12 ft. stroke, with TWO CYLINDERS 11 tons each, furnished new to the company. ONE 22 in. cylinder HORIZONTAL ROTARY ENGINE, with 8 ton BOILER. ONE 22 in. cylinder CRUSHING ENGINE and CRUSHER, with shafting complete, and 10 ton BOILER.—For particulars of price, &c., apply to Capt. J. P. NICHOLLS, on the mine; or to Mr. C. WESTCOMBE, Southgate, Exeter.

**FOR SALE, BY PRIVATE CONTRACT,** at NEW WHEAL HENDER, in the parish of CROWAN, and county of CORNWALL, an excellent cylinder ENGINE, first piece of rod and caps, with 11 tons BOILER; stroke of engine, 5 ft. 6 in.; weight, 8½ ft. Also, an excellent balance-boil. They are situated within a mile of the port of Hayle, and two miles of the West Cornwall Railway.—For a view of the same, apply to the captain on the mine; and to treat for the same apply to Capt. REDRUTH, Bank House, Redruth.—Dated Redruth, June 11, 1862.

**FOR SALE, BY PRIVATE CONTRACT,** STENCOOSE AND MAUL UNITED MINES, in the parish of ST. AGNES, CORNWALL. Communications to be addressed to the Committee, Chacewater, Cornwall, of whom all particulars may be had.—Chacewater, May 27, 1862.

**FOR SALE,** a splendid nearly NEW 30 in. cylinder STEAM PUMPING ENGINE, with 10 ton BOILER, very bright, and in perfect order.—Apply to Mr. JAMES HOLLOW, Lelant, Hayle.

BUCKFASTLEIGH, DEVON.

**TO BE SOLD, BY PRIVATE CONTRACT,** a SMALL PROPERTY in the immediate neighbourhood of the Emma, Brook, and Wrey mines, called RETREAT, or DODD'S GROUND, containing about 14 acres, on which is fine timber. Also, near to the above, a COPPIE, called HILLA. Both these properties have been taken over by competent Cornish captains, and pronounced to be in top order.—For further particulars, apply to Mr. WILLIAM BRADFORD, Alter, near Hayle.

**YOUTH WALES COAL.—TO BE LET,** the COAL and IRONSTONE UNDER THE LANDS of Lieut.-Col. Cowell Stepney, situated in GWYNEDDAETH VALLEY. The Gwendraeth Canal passes through the property, and communicates with the sea and South Wales Railway. It is probable that a line railway will be made through this property.—For particulars, apply to Messrs. FIELD REED, 36, Lincoln's Inn-Fields, London; or to Mr. WILLIAM ROSSER, Mining Engineer, Llanelli.

**TO IRON MANUFACTURERS AND OTHERS.—TO BE SOLD, BY PRIVATE CONTRACT,** a magnificient NEW BLAST ENGINE, CHIMNEYS, &c., by those eminent engineers, William Fairbairn and Son, Manchester. The base of the steam cylinder is 38 in., and of the blowing cylinder 86 in., working at 12 ft. stroke, with preparations for coupling a second engine thereto at any future period; to all the fittings, &c., for hot air stoves, furnaces, &c.—Apply to WHEATLEY KIRK and Co., engineers, contractors, &c., Albert-street, St. Mary's, Manchester.

**TO MINING CAPITALISTS.—TO BE LET,** in MERIONETHSHIRE, NORTH WALES, SETTS for MINING PURPOSES, in estates comprising many thousand acres, over which the Crown claims have been re-assessed. There are strong indications of lead, copper, and other minerals, also slate and iron. The sets lie nearly between the Liangynog Lead Mines and the celebrated Clogau Gold Mine, which is yielding from 11 to 12 lbs. avoirdupois weight of pure gold weekly; and the first 7 miles, the latter 14 miles distant. None need apply but the principals or their agents.—For further particulars, and permission to view the sets, address H. T. RICHARDSON, Esq., Aber-Hirnant, Bala, North Wales.

**TO CAPITALISTS.—TO BE LET,** upon very advantageous terms, the LOWER SEAMS of COAL, IRONSTONE, and FIRE-CLAY under portion of the WILNOCOTE ESTATE, comprised in about 86 acres of surface. The rate of winning and opening these seams will be very moderate, as the shafts from the upper, or "seven foot" seam have been wrought or sunk within 40 yards of "deep coal," and will be available for future use with slight repairs. The "deep coal" in the neighbouring colliery is 7 feet 4 inches in thickness, of good quality, and is sold at a low rate per ton. The fire-clay is eminently suited for the manufacture of sewerage pipes and stoneware goods generally. Arrangements will be made for communication with the Midland Rail-way.—For further particulars, apply to Mr. ROSSER and Co., civil and mining engineer, Atherton, Warwickshire.

**TO SPUTTER MANUFACTURERS.—The Directors of the GENERAL MINING COMPANY FOR IRELAND (LIMITED) APPRISE all SMOLETERS that they are now in POSITION to FURNISH in quantity REGULAR SUPPLIES of CALAMINE, containing a high percentage of metal. The great bulk of calamine on the property of the company is the only one of magnitude known to the United Kingdom, but it is precisely similar in character to those in Belgium and France. The ore is carefully dressed by the most approved machinery, and will be sold either raw or calcined, at the option of the purchaser. The quality of the sputter made here is of the first-class, and is very superior to that manufactured from blends. By order, EDWARD MORAN, Sec.**

**EDWARD'S PATENT MINERAL ORE AND COAL WASHING MACHINE.**—This is by far THE MOST ECONOMICAL, both in working, as well as THE MOST DURABLE, and EFFICIENT MACHINE ever invented. Complete machine, capable of washing from 25 to 50 tons per diem (according to quality), £75.—Full particulars, testimonials, &c., may be obtained from E. EDWARDS, C.E., Beaconton-buildings, Strand, London.

A MODEL may be seen at Mr. EDWARDS's office, Beaconton-buildings.

**CREASE'S PATENT EXCAVATING MACHINERY,** for SUPERSEDED THE SLOW and EXPENSIVE USE of MANUAL LABOUR in SINKING SHAFTS, DRIVING LEVELS, TUNNELLING, &c., is guaranteed to move through any rock, of average hardness at a minimum rate of 1 fm. per diem, and to sink shafts at the rate of 3 fms. in three days.

Mr. CREASE will undertake contracts for sinking shafts, driving levels, &c., at an enormous reduction of time, and great saving in cost.

Applications to be addressed to Mr. GEORGE T. CURRIS (sole agent), 17, Gracechurch-street, London, E.C.

By providing the power of calculating the time and cost to explore a certain depth in this unmistakable advantage—that when the ground has been once carefully and systematically explored, and operations properly and systematically carried out for its development, there would be far less chance of unsatisfactory results than are met with by merchants and manufacturers in the usual routine of their business. As this important invention must beneficially interest the landowners, mine proprietors, merchants, and miners, we hope it will meet with immediate adoption.—*Mining Journal*.

**BELL BROTHERS** beg to intimate that, having become SOLE LICENSERS in the United Kingdom of PROV. DEVILLE'S METHOD of PRODUCING PURE ALUMINIUM, they are now in a POSITION to SUPPLY, from their Works here, both this metal and its compound with copper, known under the name of ALUMINIUM BRONZE.—Newcastle-on-Tyne, September, 1860.

**THE MINING REVIEW, AND JOURNAL OF COMMERCE, TRADE AND MANUFACTURE, SCIENCE AND THE ARTS.**—Subscription, £1 1s. annually. Price 6d. stamped. Wednesday, March 28, 1862.

**RAILWAYS AND MINES,** Capitalists who seek safe and profitable investments, free from risk, should act only upon the soundest information. The market prices for the day are for the most part given by the immediate supply and demand, and the operations of speculators, without reference to the more safe mode of the property. Railways depend upon the traffic, expenditure of capital accounts, the probabilities of alliance or competition with neighbouring railways, the creation of new shares, the state of the money market as affecting the rates of dividends, and other considerations founded on data to which these only can have any other special attention to the subject. Mines afford a wider range for profit than any other public securities. The best are free from debt, have large reserves, and pay dividends bi-monthly varying from £15 to £25 per cent. per annum.

Instances frequently occur of small companies, who, though they may be well managed, will be compelled to purchase only upon the most reliable information. The experience of mining purveyors justifies us in offering our advice to the uninitiated in selecting mines for investment; we will, therefore, forward, upon receipt of Post-office address, well repay capitals for money employed.

**THOMAS TREDENNICK AND CO., STOCK AND SHAREBROKERS, and DEALERS IN BRITISH MINING SHARES,** 78, LOMBARD STREET, E.C.

in the names of six divided and six progressive companies that will, in our opinion, well repay capitals for money employed.

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Journal of the Royal Society of Arts, 30th of June, 1862.

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